3s. 6d.

Light and Lighting

August 1961

The floodlit spire of the church of St. Maclou, one of several notable floodlighting installations for the recent AFE meeting in Rouen, a report on which, together with that of the Italian lighting society, appears in this issue.

4930

Daylight produces the goods

Daylight produces the goods. And daylight produces the sales. That's why, for making or selling, you can't do better than let the new Mazda °Kolor-rite lamps put your goods in a good light. °Kolor-rite tubes go into existing fittings, and cost no more than conventional fluorescent tubes. No additional capital outlay therefore is needed for your shop or factory to gain extra efficiency and extra sales.

Get °Kolor-rite fluorescent lamps in 5-ft. tubes with BC or Bi-pin caps, or in 4-ft. tubes with Bi-pin caps.

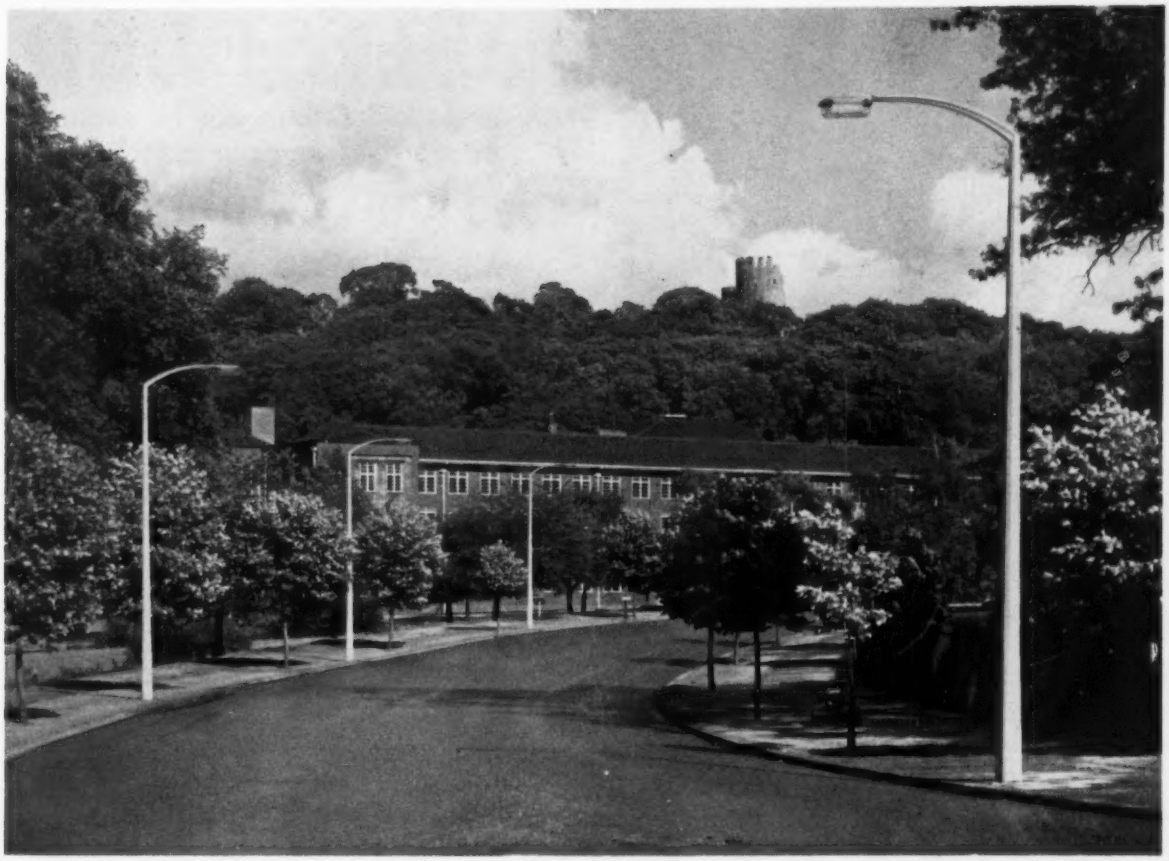
Mazda °Kolor-rite lamps give the nearest thing to daylight

°Kolor-rite

AEI

Lamp and Lighting Co Ltd

Head Office: Melton Road, Leicester



Photograph of one of our many designs acceptable to the Ministry of Transport for use on trunk roads and approved by The Council of Industrial Design.

STANTON AND STAVELEY

Prestressed Spun Concrete Lighting Columns

Type 8F Spun Concrete Lighting Columns at Dudley, fitted with Revo C.15342 lanterns.

Photograph by courtesy of D. S. Warren, A.M.I.C.E., A.M.I.Mun.E., Engineer and Surveyor, Dudley.

Spun concrete column under a load of 1,092 lb. showing a deflection of 13½ inches. (The British Standard 1308:1957 proof test load is 320 lb.)

Stanton and Staveley Sales Limited. Near Nottingham

Quality in Craftsmanship, Potter (Photo Fox Photos Ltd)

CRYSELCO

lamps and fittings can be obtained from any of fourteen branches and depots throughout the country.

All CRYSELCO business is based upon a policy of Quality and Service.

This attention to detail in production and distribution, coupled with more than 60 years' experience in lamp manufacture, ensures quality products, promptly delivered.

The range of lamps and fittings available is extensive. If you have not received the current catalogue, please send for one today.

QUALITY and SERVICE

CRYSELCO BRANCHES
are situated throughout the country.

Their aim is to give you quality products plus good service.

CRYSELCO Managers in the following towns and cities would be pleased to hear from you.

BEDFORD
BIRMINGHAM
BRISTOL
BURY ST EDMUNDS
CARDIFF
GLASGOW
LEEDS
LEICESTER
LIVERPOOL
LONDON
MANCHESTER
NEWCASTLE
NOTTINGHAM
SOUTHAMPTON

CRYSELCO LIMITED
KEMPSTON WORKS BEDFORD

Service by Bearer, Nigeria (Photo J. Allan Cash)

new atlas super-8 circuit

cuts today's fluorescent lighting costs by 25%

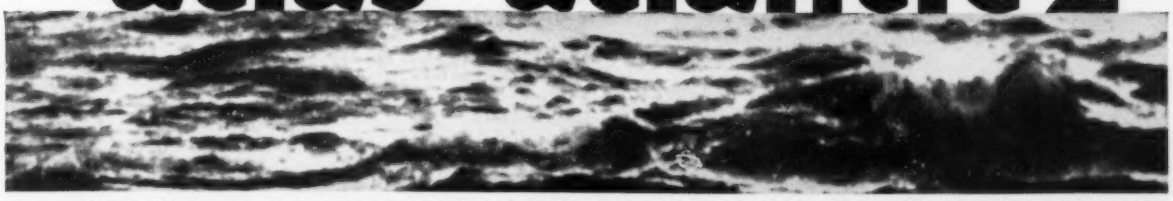
This latest Atlas advance is based on their development of a new 8ft. 85w. tube (with an output of 81 lumens per watt) and new low loss control gear. They form a twin tube unit which offers substantial economies compared with a standard 5ft. 80w. twin fitting.

15% saving on capital cost of lighting fittings
15% saving on capital cost of installation wiring
35% saving on current consumption costs.
At least 25% saving on total annual lighting costs.

To these advantages more are added when the circuit is incorporated in the 8ft. Atlantic 2 chassis . . . rapid installation, simple maintenance, good design and finish, a complete range of diffuser and reflector attachments.

the super-8 circuit comes to life with

atlas atlantic 2



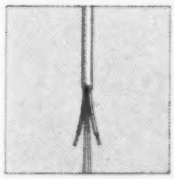
For complete details please write to: ATLAS LIGHTING LIMITED, THORN HOUSE, UPPER ST. MARTIN'S LANE, LONDON WC2
DTV

EXECUTIVE...

A new range of commercial lighting fittings, pendant and ceiling type, offering a wide choice of glasses, reflectors, skirts and suspensions, based on a quite small number of standard components. This is **EXECUTIVE** lighting, elegant, versatile and easy to maintain. Particularly suitable for offices, shops and stores, schools and public buildings.

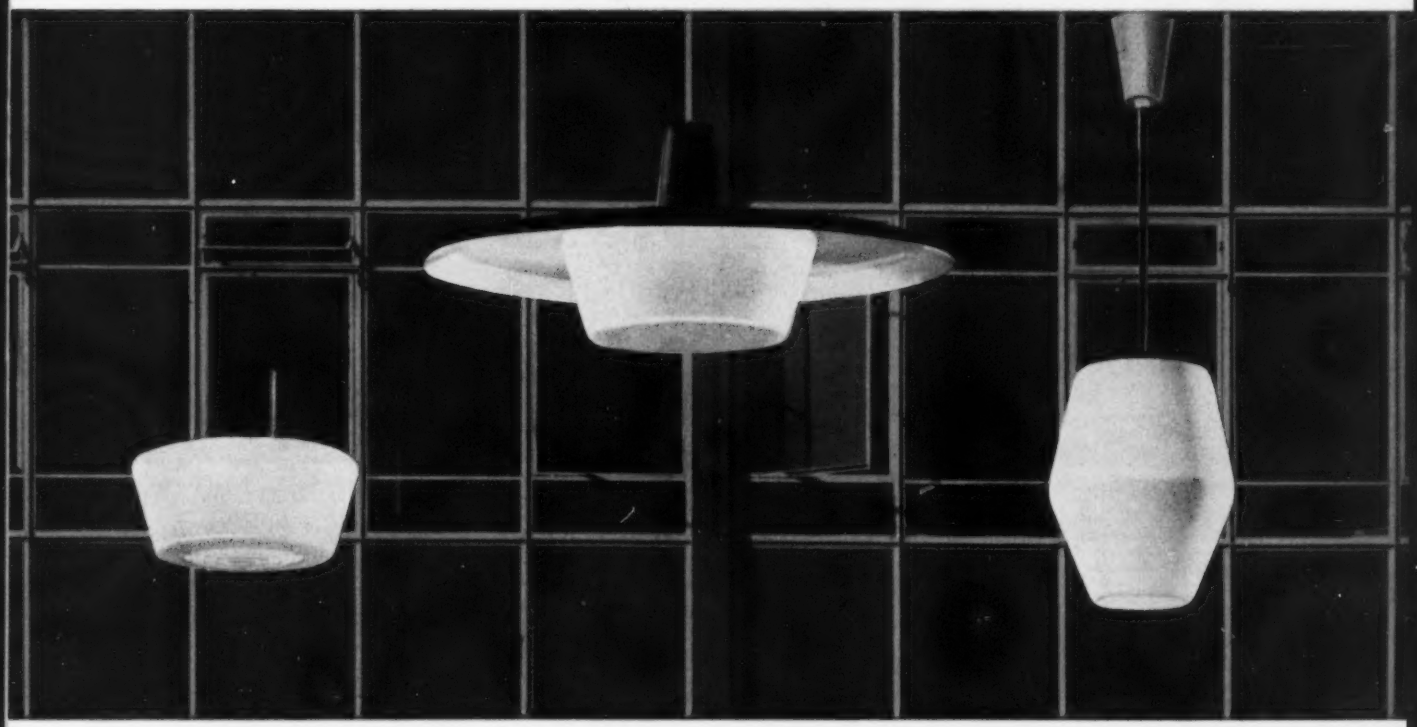
New simple 'TURN and LOWER' action for easiest ever installation and maintenance.

G.E.C's new positive bayonet fixing with 'turn and lower' action means EXECUTIVE glasses can be fixed or removed in an instant, saving time and money on maintenance and lamp replacement. (Patent applied for).



EXECUTIVE suspensions in ten different lengths are either ½ in. silver anodised aluminium tube or this new steel reinforced white flexible with positive and independent anchoring system top and bottom. (Patent applied for).

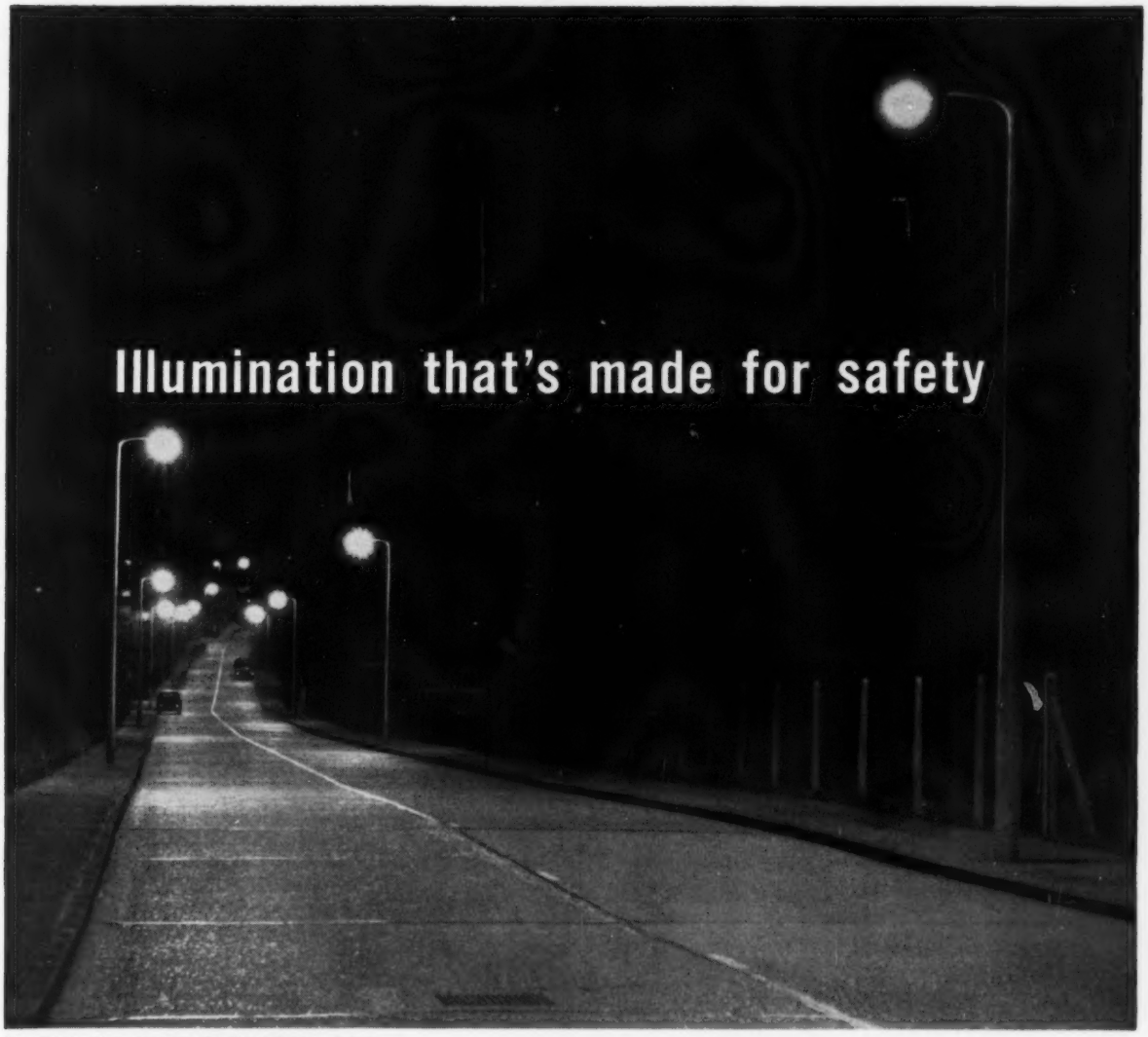
Internal locking screw on lampholder prevents unscrewing when relamping.



EXECUTIVE

G.E.C.

LIGHTING & HEATING GROUP, THE GENERAL ELECTRIC CO. LTD., MAGNET HOUSE, KINGSWAY, LONDON, W.C.2



The excellent illumination given by these Philips MBF/U 250-watt lamps ensures maximum safety for all road users. They provide excellent visibility . . . reduce the risk of accident. The efficiency of this lighting is matched by the efficiency and modern styling of the Eleco Silver Ray Lanterns in which they are housed, and the HW.820 Elecoslim columns that support them. This is just one more of the many successful street lighting schemes carried out by these two famous companies—Philips and Eleco. Their long experience is available to you at any time.

Lighting installation in Roding Lane, Wanstead. Photographs by kind permission of L. S. Jeffery, Esq., A.M.I.C.E., M.I.Mun.E., A.M.I.Struct.E., Engineer & Surveyor of the Wanstead and Woodford Borough Council.

PHILIPS ELECTRICAL LTD Lamp & Lighting Group

CENTURY HOUSE · SHAFTESBURY AVENUE · LONDON WC2

PHILIPS

(LD3389)

Vol. 54 No. 8

Light and Lighting

Editor: G. F. COLE

Assistant Editor: D. B. WILLSON

CONTENTS

Published by the Illuminating Engineering Society at 32 Victoria Street, London, SW1 (ABBey 7553). Printed in England by the Shenval Press, Simson Shand Ltd, London, Hertford & Harlow. Annual subscription 2 gns.; single copies 3s. 6d.

Education

On several occasions in the past we have drawn attention to the importance of education in the lighting industry—to the need both for ensuring a steady intake of trained lighting engineers and for continued training beyond the City and Guilds standard. It is therefore very encouraging to learn that the number of entrants for the City and Guilds examinations this year was greater than in the past few years. Equally encouraging is the number of courses on different subjects which are being made available to both trainee and qualified lighting engineers. Elsewhere in this issue we give details of courses starting this autumn in London, Salford and Leeds for students wishing to take the City and Guilds examinations; also given are details of several special courses or series of lectures. A large part of the credit for the latter must go to the IES Education Committee which under the chairmanship of Dr Padgham during the past three years has made great efforts to encourage technical colleges to arrange courses of this kind. Of particular interest is the series of lectures on architectural aspects of lighting to be held at the Regent Street Polytechnic. The inclusion of architectural matters in the training of lighting engineers has been before the Education Committee for some time; there appears, however, to be no easy solution to the problem of including matters of aesthetics in what at present is essentially an engineering syllabus, but courses such as this will be widely welcomed. One significant difference between this coming series and previous lectures arranged for IES members is that this one is being arranged by a college; it is to be hoped that other colleges around the country will take note and follow suit. Those responsible for all these developments in further education are to be congratulated and should be given every support by both individuals and by the industry.

Notes and News

AT THE REQUEST OF THE IES EDUCATION COMMITTEE, the Regent Street Polytechnic has arranged a series of six lectures entitled 'Architectural aspects of lighting' to take place in the autumn. The first lecture will be given on Wednesday September 27 and the other five lectures on successive Wednesdays. The subjects of the individual lectures and the dates are as follows:

Sept 27	History of design
Oct 4	The approach to light and structure
,, 11	Relationship of daylighting with artificial light
,, 18	Light and building services
,, 25	Building components and interior decoration
Nov 1	Professional relationship, architect-lighting engineer

Each lecture will begin at 7 p.m. and will conclude at 8.30 p.m. with time being allowed for discussion; the registration fee is £1 1*s*. The purpose of the series is to provide an opportunity for qualified lighting engineers to broaden their knowledge of architectural matters by hearing from practising architects and discussing problems with them. There is a great need for lectures of this kind for lighting engineers and there will no doubt be more applications for places than are available. Members of the IES (although the series is not restricted to IES members) are urged to make their applications (to The Registrar, The Polytechnic, 309 Regent Street, London, W1) as soon as possible.

Street lighting and accidents

THERE HAVE BEEN MANY PUBLICATIONS on street lighting and accidents, widely varying in the reliability of the evidence on which they are based and correspondingly different in the extent to which their conclusions carry conviction. The Commission Internationale de l'Eclairage has recently issued a report on this subject, prepared by its Technical Committee on Street Lighting under the chairmanship of Mr J. M. Waldram. The object of the report is twofold: to give an unbiased and critical account of previous work and to suggest ways in which reliable data may be obtained in the future.

As might well be expected, the work carried out at the Road Research Laboratory in this country is discussed at some length, but careful work in Switzerland has also been taken into account in reaching the Committee's most important conclusion, which is that 'there is reliable and authoritative evidence of a reduction of personal injury accidents of the order of 30 per cent, when a street formerly poorly lighted is relighted to good modern standards'. As regards future work, it is pointed out that the function of street lighting is not *primarily* to reduce accidents. In fact the line of argument seems to be that the lighting can do no more than provide the driver with the information he requires. When no further improvement in this direction is possible, reduction in the accident rate can only be looked for as the result of other measures.

The CIE now issues from time to time a report on some subject within its field of activity. These reports are prepared by the Commission's Technical Committees and, as official publications, approved after submission to all National Committees, each may be regarded as embodying an international consensus of technical opinion. They may, in fact, be looked upon as the international equivalents of the reports published in this country by the Technical Committee of the IES. They may be purchased through the Hon Secretary of the British National Committee, Mr L. H. McDermott, The National Physical Laboratory, Teddington. The street lighting and accidents report (CIE Publication No. 8) is trilingual, 27 pages long and costs 15*s*.

The French Lighting Code

THE ASSOCIATION FRANÇAISE DE L'ECLAIRAGE has just issued a new edition of its Lighting Code, this time in collaboration with the French equivalent of ROSPA. It is a booklet of fifty-six octavo pages and after an introduction there are three sections, the first dealing with the principles of artificial lighting, the second with daylight and the third with illumination levels. Finally there are twenty-three pages of tables giving the values of illumination considered necessary or desirable for a large number of different kinds of work, and a brief a table of definitions of the principal terms used by lighting engineers.

The introduction is a concise statement of the considerations on which the remainder of the document is based. It is pointed out thas in previous editions the values of illumination given were in general agreement with those in the British Code, based on Weston's work. In the present revision account has been taken of the work carried out recently in the USA by Blackwell. It seems probable that this desire to make full use of all the information now available has been responsible for the inclusion in the tables of two values of illumination for most of the tasks listed. One is the minimum considered acceptable, the other is a higher value which is recommended. The ratio of one to the other is by no means

constant; each case appears to have been considered on its own merits and the ratio consequently varies between 4:1 and 4:3.

In its treatment of glare the French Code is much more like the 1955 edition of the British Code than the new edition. There is no mention of glare indices but on the other hand there is a lengthy discussion of luminance differences and gradations. Similarly, the method used in earlier editions of the British Code for finding the illumination required for a specific task, using the process of task analysis there described, has again been followed in the present edition of the French Code. The use of supplementary artificial lighting is mentioned but only quite briefly. The section on daylight is a short one, but it includes a recommendation regarding the glass area to be provided in a roof-lighted building. The full title of the document is 'Recommandatims Relatives a l'Eclairage des Batiments et de leur Annexes' and copies may be obtained from the AFE, 33 Rue de Naples, Paris 8, price 2NF.

Colour in factories

READERS WILL REMEMBER THE BOOKLET 'The Lighting of Factories' (Factory Building Studies No. 2) which was published for DSIR by HMSO a year or two ago. This is now followed by 'Colouring in Factories' (FBS, No. 8) by H. L. Gloag of the BRS. As lighting and colouring are interrelated this latest study is complementary to No. 2 in the series and is in fact intended to be read in conjunction with it. The booklet is in two sections, both of which include coloured illustrations. The first section describes the basic properties and effects of colours to form general principles for colour design. The second section explains the practical application of these principles. Notes on special problems arising where lighting is partly or wholly artificial are included and a table gives some guide to the appearance of colours under different types of fluorescent lamps. The booklet is obtainable from HMSO price 7*s*. 6*d*.

Lighting in Parliament

FURTHER COMPLAINT HAS BEEN MADE recently in the House of Commons on the identical tendering to local authorities for the supply of lamps: one member asked to know the evidence which had been received of monopoly conditions in the lamp industry. Mr Macpherson, Parliamentary Secretary to the Board of Trade replied that the Board had received very few complaints on this score since the Monopolies Commission report in 1951. He pointed out that prices indicated in schedules of tenders for electric lamps sent to the BOT for examination were by no means all identical; the information had given the President of the Board no reason to think that in this industry conditions existed to which the 1948 Act applied but he indicated a willingness to consider any further evidence. Mrs Slater asserted that in the list submitted by the Stoke-on-Trent council there was identical tendering except in two cases. Mr Macpherson could not agree; he said there were two firms who were prepared to offer lamps below the general level of prices and another offering them at above that level, whilst one firm was offering some above and some below. If the member had evidence of the existence of an agreement, it ought to be brought to the attention of the Registrar of Restrictive Trading Agreements but, he concluded, 'we have no evidence whatever of the existence of any such agreement'.

More recently, attention was drawn to the fact that large road transport vehicles were not fitted with direction indicators, to which the Minister of Transport replied that this was not yet a compulsory requirement for any class of vehicle. He was not expecting to decide whether to make direction indicators compulsory until sufficient experience had been gained of the working of new regulations affecting indicators which were already fitted. Proposals based on the recommendations of a working party of the Economic Commission for Europe had been circulated and detailed comments were now being received and were being studied in the hope of preparing an international standard.

Lighting and the modern theatre

CRITICISM OF MUCH THEATRE ARCHITECTURE was a prominent feature of an international conference of theatre technicians and architects held at the National Film Theatre at the end of June by the British Association of Theatre Technicians. The underlying theme of the conference was the 'adaptable theatre' which appears to describe a building capable of being used for almost any sort of cultural activity apart from being suitable for a variety of stage productions. One session was given over to lighting, in which Mr Sean Kenny, set designer, Mr Richard Pilbrow, lighting designer and IES member Mr Frederick Bentham contributed papers. All confirmed that lighting is now an elemental part of dramatic composition but there was some sharp division of opinion on how the required light was to be produced and used. Mr Pilbrow pointed out that the days of battens and floods had gone, and that internal-reflector lamps will find increasing use. He would have liked lamp manufacturers to produce a greater variety of projector lamps and he also suggested that lighting control desks should provide facilities for setting up an infinite number of arrangements. Mr Bentham pointed out the practical difficulties in the way of building infinite variety into control systems and he also displayed a strong preference for keeping the number of lamp and lantern types to a minimum until the technique of using them had become sufficiently sophisticated to justify the introduction of new versions.

SHOPS AND SHOWROOMS

The lighting of shops and stores, or, in fact, any area given over to the display and sale of goods, exhibits an ever growing tendency towards the individual approach. It is hardly surprising that this should be so, as modern technology makes it possible to express the individuality of the designer and proprietor in metal, glass, wood and plastics at a price which is within the economic ability of much of the modern commercial world to meet. In the following pages, five examples of this approach are given, showing that it is being applied equally to the local business with a single shop as well as to the large store of a nation-wide group.

Opposite page, massive store-guide lit by fluorescent lamps. Behind it is the information counter with egg-crate louvered lighting box above. In the foreground, double-line of light from fluorescent lamps in H-section trough delineates departments. Right, circular lighting boxes in television department. (Note deep recesses for receivers.) Below right, standardised teak display unit, with lighting from fluorescent concealed lamps by deep fascia.

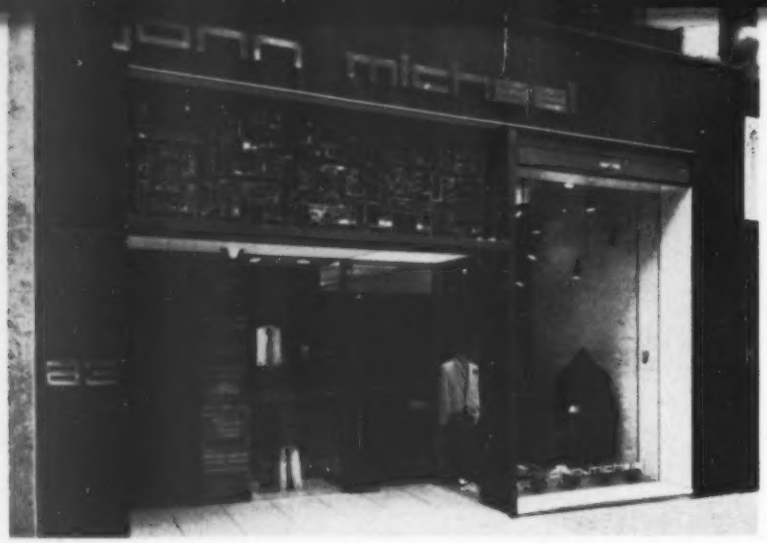
Furniture Store, Gloucester

THIS NEW STORE—a three storey curtain-walled building—has 18,000 ft of sales area, arranged on each floor around the central staircase. Five departments—china and glass, radio and television, soft furnishing, linen and lighting fittings—occupy the ground floor, where there is also a large information desk, with luminous ceiling above. On the first floor there is the carpet department and a Richard Henry hairdressing salon, while the top floor is devoted to furniture, mostly arranged in room settings. Windows of the store are recessed and there are no stall risers, so that passers by can see directly into the store. There is, moreover, a minimum of separation between the various departments. Counters and display units are made of teak and an interesting section is that where television sets are displayed. This is a semi-circular area, with the sets housed in deep recesses to facilitate viewing.

With five departments, together with accounts and information counters, to accommodate on the ground floor, the designers decided not to use screens or partitions to demarcate the various sections. Instead, the lighting of the store is their principal means of defining the departments and indicating customer circulation. This was aimed at an illumination level of 100 lm/ft², not including light from supplementary sources such as the store guides. The light comes mainly from fluorescent lamps—Mazda-'Kolorite' in areas where fabrics are sold, warm-white elsewhere—together with a proportion of 100w pearl tungsten lamps for colour correction. The lamps are housed in large square and circular boxes suspended from the ceiling and covered by polystyrene egg-crate louvers, easily cut to the shape of the boxes, the ragged edge being masked by the aluminium framing. These boxes also house a number of 150w internally-silvered spot-lamps, the cut-off angle being such that it does not interfere with the beams from these lamps.

Store guides of acid-etched glass with lettering painted on, are lit by banks of 3 ft fluorescent lamps, while departments are delineated by double 'lines of light', created by fluorescent lamps in suspended metal troughs arranged side by side in an H-section. The lamps are concealed by a narrow reflector, the inside of the trough being painted white. Windows have fluorescent lamps recessed into the ceilings of tongued and grooved boarding and covered by opal glass diffusers, while tungsten spotlights are also recessed.

Architect: Kenneth Gibson, Dip Arch, ARIBA.
Interior design: Conran Design Group.



Men's wear shop, Bond Street

IN THIS 'BOUTIQUE' for high fashion men's wear at the Oxford Street end of New Bond Street, more attention has been paid to the lighting than is customary in shops many times its size. The shopfront is mainly of a single sheet of unframed plate glass, with a small showcase window to the left of the recessed doorway. A dominant feature is a stained glass mosaic fascia by Roy Lewis, RCA; pilasters are of black granite, window returns in white marble brickettes and there are full-height suede curtains at the rear. The main window is lit by four fittings each comprising four adjustable spotlamps with conical spun-metal reflectors fixed to a single suspension rod, and by five eyeball spotlights at floor level. The smaller window is lit by four adjustable spotlights recessed into the ceiling. Inside, the narrow shop is divided into four areas. The first, which is devoted to accessories, is lighted indirectly by reflection from its ceiling, the light sources being the edge of a suspended canopy of hardwood boarding in the next section of the shop. This section area is lit by lamps above an opal plastic panel recessed into the canopy, while three glass-topped display tables have suspended over them tungsten lamps in large square shades of purple Thai silk, the goods in the tops of these tables being lit more directly

Top, main window of unframed plate glass is lit by spotlights in conical reflectors fixed to metal suspension rods, and by eyeball spotlights at floor level. Right, centre section of shop, with beaten copper canopy over, pierced to house random arrangement of internally-silvered spotlamps. (Note concealed lighting of invoicing shelf.)

Right, close up of glass-topped display tables internally lit by lamps concealed by rear shelf. Above are fittings with large square shades of Thai silk. Below, view from entrance area of shop, devoted to accessories, showing hardwood canopy into which lighting 'beam' for displays on left is recessed, and above which are fluorescent lamps which light indirectly the entrance area itself.

by lamps concealed below a shelf at the rear, the top of which is flush with the glass top of the table. In the next section of the shop, which is devoted to shirts and knitwear, a large leather-topped table and storage unit has suspended over it a beaten copper canopy in which holes have been cut, with ragged, petal-like edges, to house a number of internally-silvered spotlamps. A screen of white marble brickettes beyond is lit by lamps behind a projecting hardwood fascia and lighting above an invoicing and packing shelf is provided by lamps concealed in the soffit of shelving above. The last section of the shop (apart from a stock area from which it is separated by a floor-to-ceiling curtain) is lit by fluorescent lamps, concealed behind a peripheral projecting fascia, and which cast light into the storage units for jackets and trousers and illuminate the curtaining mentioned above.

Designer: Anthony R. Ullman, of CIL Design Office, and Gerald McCann, RCA.
Contractors: City Industrial Ltd.
Shopfitting: George Parnell Ltd.
Lighting fittings: George Forrest, Ann Storm.

Department store, Birmingham

RACKHAMS STORE, BIRMINGHAM, occupies part of a 4½ acre island site, which includes other, smaller shops and an office block with a 150 ft tower, making it the tallest building in the city. There are eight floors (seven above ground) each of 55,000 ft², to which a further 7,000 ft², will be added when a planned extension to the building is completed. One of the largest enterprises of its kind in Europe, the store includes departments for men's, women's and children's clothing, furniture and hardware, fancy goods and stationery and, on the top floor, two restaurants, a hairdressing salon and a customer's lounge. Built by Taylor Woodrow, who completed the contract nine months ahead of schedule, the store is constructed of reinforced concrete, faced with Portland stone, with entrances in polished travertine.

Lighting of sales areas is mainly from 4 ft square fluorescent fittings recessed into acoustic-tile ceilings. Like most of the fittings in the store, of which there are several thousand, these were designed specially for this contract. Illumination levels in sales areas range from 30–35 lm/ft² on the ground and first floors and in low-ceiling areas lit by tungsten lamps, to 35–45 lm/ft² in the main parts of the 2nd and 6th floors. The main lighting fittings each house six 4 ft fluorescent lamps, the double-skin plastics diffuser being in four parts to facilitate cleaning and relamping. The design of the diffuser panels, however, conceals the fact that they are not of one piece. Being formed in section as shallow trapezia, with their lower surfaces wider than their upper surfaces, they conceal both the joints between adjacent panels and the framing around the edge of the fitting. In low-ceilinged areas, semi-recessed spotlights are used, housing internally-silvered spotlamps covered

Opposite page: bird's eye view of the store and close-up of escalator landing area on typical floor. Into the lowered ceiling internally-silvered spotlamps are deeply recessed in baffled housings, while a line of fluorescent lamps is concealed above the periphery by egg-crate louvres. Right, ground floor sales area seen from one of the principal entrances. The recessed fittings, which are 4ft square, are covered by plastic diffusers, hinged in four sections for easy access.

by dished plastic diffusers, while in the suspended ceilings around the staircases and escalators, spotlamps are deeply recessed in baffled housings. Windows, protected by canopies on all frontages of the building, are lit by fluorescent lamps fixed above rows of timber battens. Socket outlets at floor level provide current for internal-reflector spotlamps housed in simple lamp-holders which can be clamped to the displays, and there are, in addition, a number of low-voltage spotlamps.

Main architects: T. P. Bennett and Son; architects for the interior: Copeland, Novak and Israel; lighting fittings: The General Electric Co Ltd, Courtney, Pope (Electrical) Ltd, Harris and Sheldon (Electrical) Ltd, Merchant Adventures Ltd; electrical contractor: Lee Beesley and Co Ltd.

Left, special decorative and lighting treatment of model gown department; a combination of deeply recessed spotlamps, concealed lighting in display recesses, elaborate chandeliers incorporating 'candle' lamps and floor standards with silk shades.

Remodelling of Horne Brothers, Oxford Street

ONE OF THE MAIN PROBLEMS to be overcome in the restyling of the St Giles Circus branch of Horne Brothers Ltd was the lack of depth in the interior, which resulted in a long, narrow sales area, 90 ft long by 11½ ft wide, relieved only by a small section at the northern end giving the overall plan an L-shape. The problem has been surmounted in a number of ways, of which the most effective is the use of back-less windows, with full-length glazing, so that the window display area appears to the casual visitor to form part of the sales area proper. Since the interior is therefore in full view of passers by (and the site, at the corner of Oxford Street and Tottenham Court Road, is in one of London's busiest areas), it was required to be particularly well lighted, to present a bright and airy space in which the goods on show at the serivce counters as well as in the display fittings may be clearly seen from outside.

To achieve this end, the general lighting installation assumes lesser significance in the overall appearance than the local lighting and comprises no more than a regular arrangement of closely spaced 2 ft square diffusing fittings, semi-recessed into the ceiling, each having an opal 'Perspex' panel held in a metal frame pierced with small perforations to give a decorative accent. Each fitting houses four 2 ft 40w fluorescent lamps.

Of the local lighting, the most significant is that used for wall shelving; it takes the form of a lighted canopy along the front of the shelving and a similar arrangement is also used at some of the counter positions. The canopy is a closed box, with wood top and sides and conceals three runs of 4 ft and 5 ft fluorescent lamps. The underside of the canopy is glazed with panels of plane prismatic louver, a clear acrylic material moulded into ½ in square closed louvers which have a prism-shaped cross-section. For the more open wall displays, 100w tungsten lamp fittings are used, these being louvered cylinders with an extended neck to which the fixing arm is attached. Pendant fittings of concentric cylinder type are used over some of the counters, which are also provided with their own internal fluorescent lighting. Use is also made of recessed, louvered, down-lighting tungsten fittings, with perforated bezel rings.

The window treatment is of interest for the degree of flexibility provided. Although of open-back design, the window display area may be divided from the sales area by means of display boards, glass shelving and the like, which are carried on poles of extruded aluminium. The poles have spring-loaded head and feet which engage in sockets provided in special metal strips set in the floor and ceilings of the window spaces; two rows of strips have been provided, to enable either the full window depth or only half of it to be used as required. The aluminium poles may also be used as mountings for spotlights and other display lighting fittings the pole cross-section being designed to take sliding brackets to which the fittings or display units are attached. Pairs of socket-outlets are provided at intervals in the floor along the runs of pole-fixing strips so that an electricity supply is available virtually at will.

The main window lighting for the window areas is effected by means of fluorescent lamps concealed above a 3 ft wide strip of ½ in. louver, sited towards the rear of the window area. The lamps used for the window lighting are mixed warm white and natural in colour, and those used for the general lighting of the interior and in the canopy are also natural, although in certain cases, where red-coloured materials are being displayed, warm white de luxe lamps are used. The illumination within the sales area is approximately 35 lm/ft².

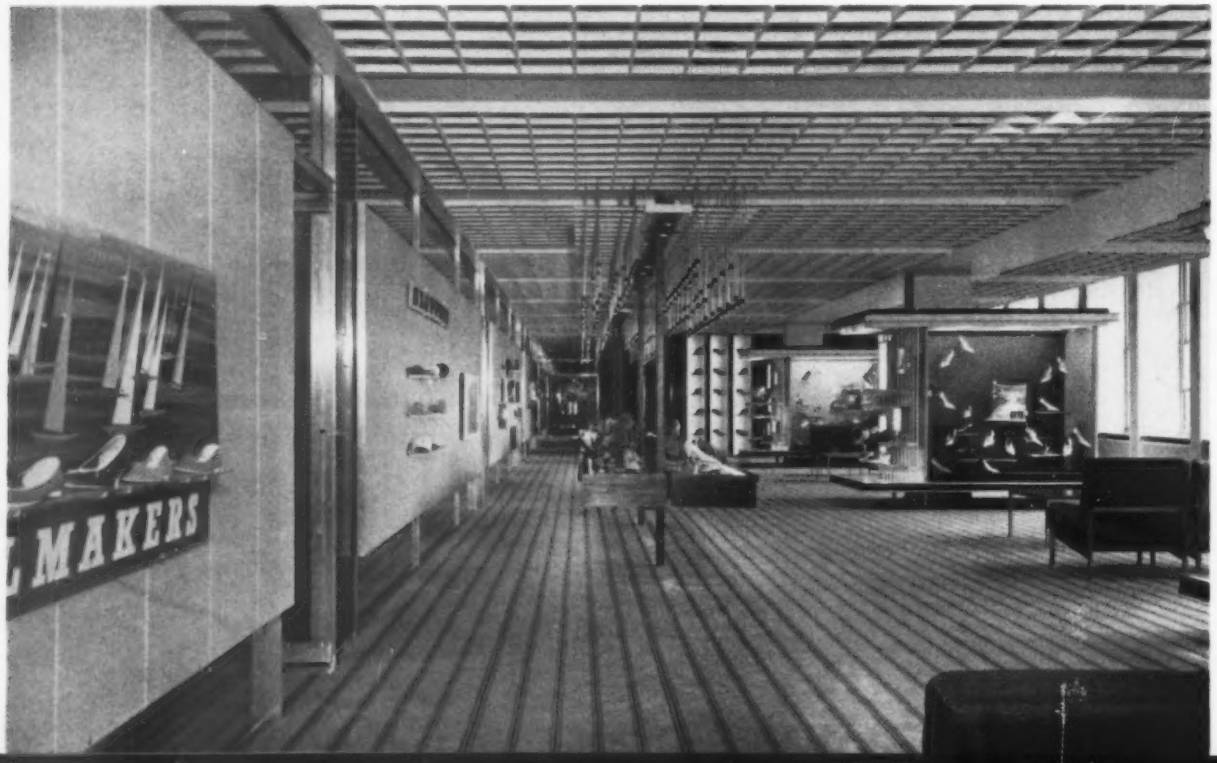
Interior design: Estate Department, Horne Brothers Ltd;
lighting fittings: Courtney, Pope (Electrical Ltd);
shop fittings: Courtney Pope Ltd.

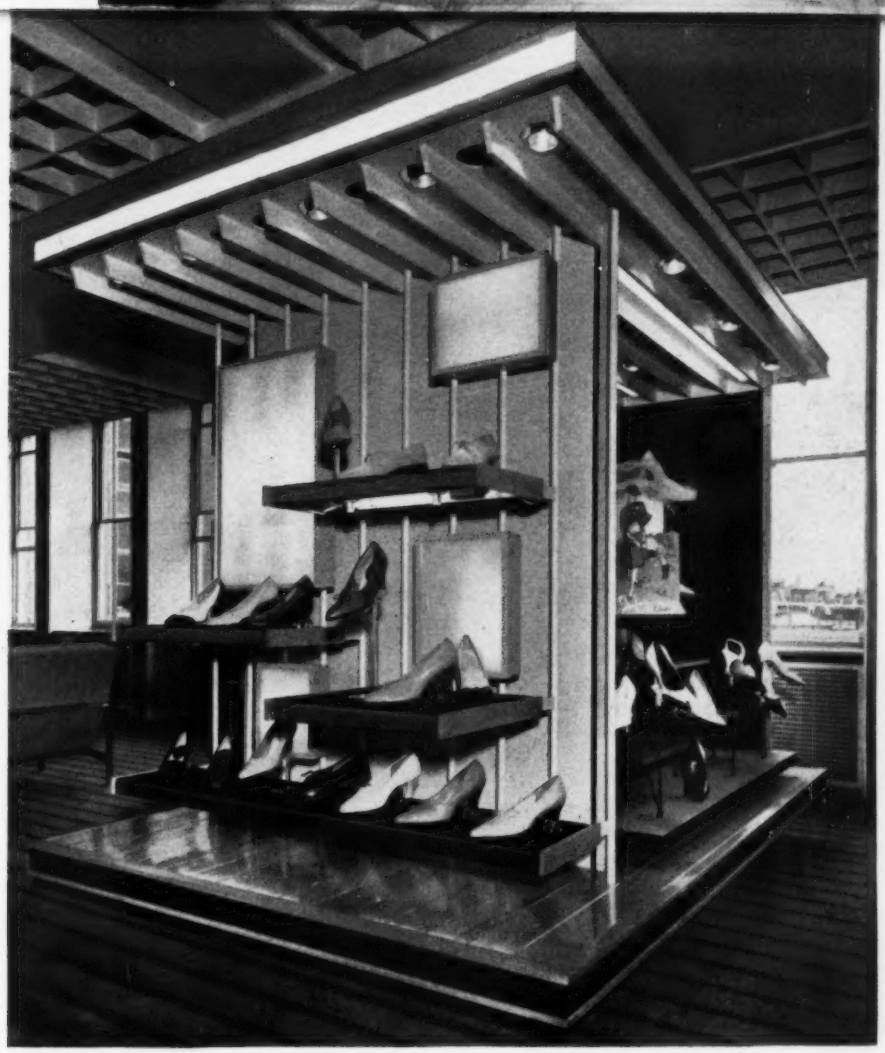
Facing page: a view of the new entrance to Horne Brothers from Tottenham Court Road with recessed fluorescent lighting over the doorway and in the canopy beyond. Above, close up of display case showing the canopy with plane prismatic louver underside; above right, view of one of the sales counters, showing further use of plane prismatic louver and down-lighting multi-cylinder pendants. Right, this view down the length of the interior illustrates the long, narrow proportions and also indicates the type of fitting used for general lighting and some of the display fittings.

Showrooms for C. & J. Clark, Berners St. W.1.

DEVOTED TO DISPLAYING FOR TRADE VISITORS the wide range of shoes made by Clark's, this new London showroom occupies, together with offices, the fifth floor of the Sanderson's building (*Light and Lighting*, July 1960). The area is divided into two main parts: a series of small functional showrooms running along the front of the building and a large display reception area behind, off which the smaller showrooms lead.

It is the large display which contains the greater lighting interest; one's first impression is that it is lighted without lighting fittings, which was the effect intended in the design, and resulted from the use made of the basic structural configuration of the area. This is a reinforced concrete frame building, in which the main structure obtrudes into each floor space in the form of two rows of columns down the length of the space, joined transversely and longitudinally by beams supporting the structural floor. As a result, the ceiling area is divided into a number of deep rectangular bays approximately 12 ft wide by 5½ ft long. Whereas in the Sanderson's showrooms on the floors below the presence of these bays has been accentuated by using them to house large flat rectangular lighting panels, Clark's interior designer has, in contrast, provided a 'ceiling' in order to disguise their existence. The ceiling comprises a plaster grid of 9 in. squares, which are sufficiently deep to cut off the void above at normal





On the facing page; top, close-up of one of the low display tables showing the array of instrument panel lamps which provides an attractive lighting feature; bottom, a view over the display area as a whole, indicating the type of display cases used. Some of the recessed tungsten fittings used for the general lighting of this area can just be seen in the plaster ceiling grid. On this page is seen a close-up of one of the display cases with the use of eye-ball spots, illuminated panels (now faced with coloured illustrations) and under-shelf fluorescent lighting.

angles of view, and to add to the void's inconspicuousness it has been painted dark blue. The lower edge of the grid projects about 1 in. below the soffit of the beams, which is 8 ft 3 in. above floor level.

Every seventh square of the grid houses a down-lighting unit, carrying a 100w internally reflecting flood lamp and specially made for the installation: it comprises an elliptical reflector of anodised aluminium of 7 in. diameter at the mouth. It was required, however, that the fitting's interior should appear unlighted, to which end the mouth has been masked by an annular plate, leaving an aperture of only $4\frac{1}{2}$ in. diameter through which the light can escape, whilst the inner surface of the elliptical spinning has been lined with a film of black p.v.c. whose inner surface carries horizontal serrations to reduce to a minimum the area in the vertical plane seen by observers. Similar fittings, fitted flush into a solid ceiling, are employed in the showrooms.

Display stands built round the columns are lighted principally from 1 in. diameter and miniature fluorescent lamps mounted under the front edges of the shelves, the same technique being employed in showcases in the showrooms, where it provides the sole display lighting. On the stands, however, additional lighting is provided from 'eye-ball' spot-lighting fittings resting in holes cut in the canopy over the front of each stand, with edge-wise wood slats providing cut-off from the side aspect; there are also a number of rear-illuminated decorative glass panels.

The main lighting feature of the display area, however, comprises two low tables on which the firm's *haute couture* models are displayed in a special setting. Round the perimeter of each table are run 1 in. diameter fluorescent lamps, so screened as to give light out horizontally on to the table tops and vertically downwards. Suspended above the table is a cluster of e.l.v. instrument panel lamps, suspended in regular arrangement at the end of painted metal tubes which are hung from pivots on a metal framework just below the ceiling, and which provides the return path of the lamp circuits. Each lamp is half covered by a small inverted metal cup, painted black externally, so that the sparkle of the lamps (which are under-run to avoid excessive brightness) is made more noticeable by the contrast. Within the ceiling are concealed a number of spot-lamps used to provide highlighting of individual shoes on the tables.

Architect: Slater and Uren, F/FRIBA; Interior Designer: Henry Philip; main contractor: Holloway Brothers (London) Ltd; electrical contractor: Duncan Watson (Electrical Engineers) Ltd; lighting fittings: The General Electric Co Ltd; shop fittings: Frederick Sage and Co Ltd.

PHOSWARE P. 142 FLUORESCENT
For four-2ft. 40w or 20w lamps. For housing estates, wide residential roads, parks, promenades, etc.

PHOSWARE P.140/A FLUORESCENT
For two-2ft. 40w lamps.
For general group 'B' lighting.

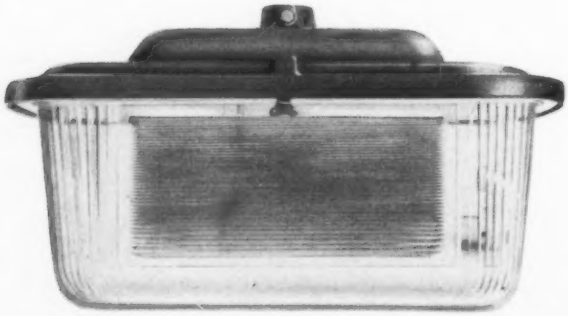
PHOSWARE P.110 'PADDINGTON'
For 45w or 60w sodium lamps, using twin refractors. Also available for use with 85w - 125w mercury and 100w - 200w tungsten lamps. This lantern has been designed to match Georgian period architecture.

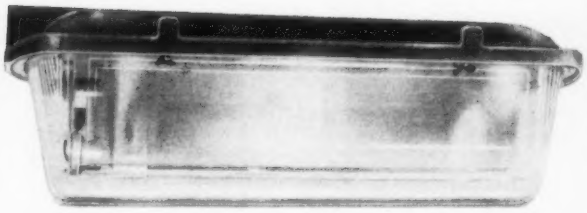
PHOSWARE P.111 ORNAMENTAL
For 100w - 200w tungsten lamps, o 80w - 125w mercury lamps. Especiall designed for promenade lighting.

PHOSWARE P.107 POST-TOP
For 100w - 200w tungsten lamps, 85w - 125w mercury lamps, or 45w-60w sodium lamps. For general group 'B' lighting.

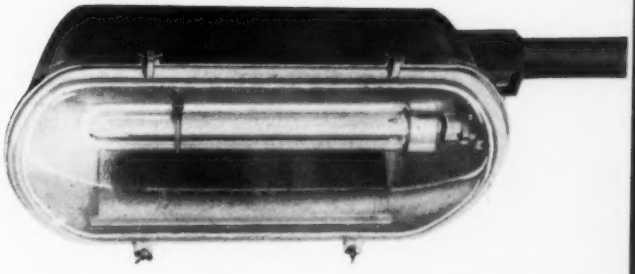
PHOSWARE P.152 SODIUM
For 45w - 60w sodium lamps. Designed to accommodate control gear in the hood if required.
For general group 'B' lighting.

PHOSWARE P.149 S/E MERCURY
For 80w - 125w mercury lamps. Cast aluminium hood and 'pin-spot' perspex bowl.
For general group 'B' lighting.

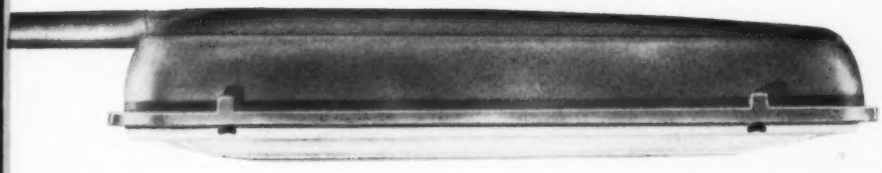




PHOSWARE P.118 SODIUM CUT-OFF
For 85w - 140w sodium lamps. Also available for use with 400w - 700w MBF mercury lamps but without the clear perspex bowl.
For general group 'A' lighting where no light above the horizontal is required.
Maximum beam from 65° - 70°.



PHOSWARE P.157 SODIUM
For 85w - 140w sodium lamps. Designed to accommodate the control gear in the hood if required.
For general Group 'A' lighting.



PHOSWARE P.131 SODIUM CUT-OFF
For 200w SO1/H or 200w linear sodium lamps.
Cast aluminium hood with mirror reflectors enclosed with a clear perspex bowl.
For 30ft. and 35ft. mounting height.

A SELECTION FROM THE WIDE RANGE OF MODERN FITTINGS BY

PHOSWARE

PHOSCO LIMITED
HOE LANE · WARE · HERTS
Telephone : Ware 3466

PHOSWARE P.161 SODIUM REFRACTOR
For 200w SO1/H sodium lamps. This lantern is available also with a clear perspex bowl and polished aluminium reflector.
For 30ft. and 35ft. mounting height.

Civic Trust Improvement at Windsor

ROYAL INAUGURATION OF 'FACE-LIFT' WHICH INCLUDES NEW STREET LIGHTING

Floodlighting of the Guildhall

WHILST THE CIVIC TRUST'S original civic improvement scheme, at Magdalen Street, Norwich, was an abounding success and has justifiably aroused widespread interest, it was, in common with the second project, at Burslem, basically an exercise in rejuvenation, aimed at showing how life and character could be restored to central streets and areas suffering in varying degrees from the effects of industrialisation. Not so, however, at Windsor—the scene of the Trust's third scheme—where any evidence of decline in this busy, prosperous, riparian municipality is conspicuously absent and where the main commercial area has aquired and maintained its own character as a foil to the sombre greyness of the castle and the cheerful sparkle of the Thames.

Yet Windsor, in common with virtually all other British towns, has evolved in a generally haphazard way, shaped by a multiplicity of unrelated decisions. Although the resulting juxtaposition of buildings and objects of different styles has helped to give Windsor its charm and character, it is no less pertinent to ask to what extent haphazard evolution of this kind may benefit from overall scrutiny and design. Herein lies the value of the Windsor scheme: it is an example of the improvement which may be achieved in an urban area whose appearance is already of above-average standard. The result is necessarily less dramatic in its effect than at Norwich or Burslem but it is no less real and in its context no less marked, confirming the Civic Trust's view that there is no area which cannot be improved at relatively small cost if all concerned are prepared to work together to that end.

Origins of scheme

The Windsor scheme was inspired by a direct appreciation of the success of the Norwich experiment and the Corporation subsequenly approached the Trust on initiating a similar project. Joint meetings with the Chamber of Trade elicited support for the idea and the Trust agreed to undertake its co-ordination, with Mr Noel Tweddell, FRIBA, as co-ordinating architect. The scheme embraces the whole of Lower Thames Street, Thames Street and High Street, together with the cluster of old properties between the Guildhall and the Castle in Church Street, Church Lane, Market Street and Castle Hill. The whole of this area is dominated by the great bulk of the Castle, around the western wall of which Thames Street and High Street wrap themselves. The object of the scheme was to enhance the character and dignity of this unique relationship.

The area contains 117 properties of which the owners of only five felt themselves to be unable wholly to co-operate; most of the properties are shops but also include banks, hotels and public houses. The street picture was confused by a multiplicity of structures, objects and signs, none of them particularly offensive individually but cumulatively unsightly. There were 221 signs of various types: 148 traffic signs (mostly 'No Waiting' or 'Waiting Limited'), twenty-nine Corporation signs, eleven public transport signs and thirty-three electrical signs on buildings. It has been found possible to effect a substantial reduction in this number, particularly by redesigning certain of the traffic signs and extending the use of the experimental yellow kerb line. Moreover, many of the new traffic signs have been fixed directly to buildings, thus eliminating the need for poles.

The greatest single change in the appearance of the high street has been the removal, by permission of The Queen, of the boundary wall dividing the castle from the street. Built just over a century ago, the wall was 500 ft long and between 6 and 12 ft high, blocking the view from many points whilst serving no useful purpose. Its removal, and the clearance of all extraneous street furniture from the pavement it bordered, has brought the castle right into the town and opened up an imposing vista.

New lighting installation

Of almost equal importance has been the complete re-arrangement of the lighting installation, in which eighteen columns and three catenary-wire suspensions were replaced by thirty-six lanterns mounted on brackets fixed to the walls of buildings, noticeably improving the view of the castle. The lanterns selected by the Trust were Atlas 'Alpha Three' with 400w mercury fluorescent lamps (similar to those used in Norwich); they have been spaced at approximately 90 ft intervals giving approximately 12,500 lm/100 ft of road. In keeping with the general rationalisation of the design of street furniture and exterior signs, the lantern brackets were specially made for the installation, combining robustness with unobtrusiveness; wiring was to be concealed where possible.

In view or the varying styles and building materials used for the properties in the 'improvement area', each bracket fixing had to be considered individually. Chasing-in the cables, finding and making suitable fixings, and making good to match the surrounding structure presented many difficulties, not all of which could be anticipated, although all were successfully overcome. The boxes for housing lamp control gear were of heavy-gauge galvanised sheet steel made by Atlas to a design approved by the Borough Engineer and in every case had to be installed inside the particular property and the individual cable run agreed. Mineral-insulated, copper-sheathed cables, provided with a protective covering of p.v.c., were used, being concealed in channels chased into the brickwork, plaster and other facing materials and occasionally laid direct in the ground, at some points underneath the paving stones. As far as possible, the electrical installation work had to be carried out in conjunction with redecoration and making good of street elevations of the properties concerned, all, of course, being carried out at the same time in the last few weeks before the inauguration.

The installation also included more conventional street lighting and other special lighting; at the upper end of the High Street, where the kerb line was also changed, a single Atlas 'Gamma Four' pole-top lantern has been used fitted with two 250w mercury fluorescent lamps and mounted on a matching 25 ft tubular steel column. In the cluster of properties lying between Castle Hill, the Town Hall and the Parish Church, use has been made by the Corporation of converted gas lanterns and decorative brackets made by their own blacksmith. A Group B installation of 125w mercury fluorescent lanterns has been provided in St Albans Street, the control gear being housed in one large box set in the exterior of the Castle Wall, whilst 80w fluorescent lanterns have been installed to provide amenity lighting at the end of Windsor Bridge.

Floodlighting has been provided for the Guildhall, Parish Church, War Memorial and King George V Memorial, the installations being designed by Philips. At the Guildhall, the contrast between the weathered brick and white stone is brought out by eight 'Altrilux' clear 500w lamps housed in 'Weybridge' lanterns fitted with spill shields and mounted on adjoining buildings; the colonnade of the Guildhall is partly silhouetted by three fittings of the same type but having frosted lamps mounted on the inside of the cornices to throw light on the cream walls, which act as reflectors. At the same time the exterior surfaces were cleaned, the statuary repaired, and the buildings repainted. For the Parish Church of St John, two forms of lighting have been used: the front is strongly lit with sodium lamps from four floodlighting lanterns, with the side walls fading into a background of trees and shrubbery, whilst white tungsten lighting provided from a combination of lanterns and projectors, is used for the tower. The main piers at the entrance to the churchyard were rebuilt and provided with new wrought-iron gates; the low wall abutting the pavement carries a number of pole-top

Views looking north along the High Street, which leads into Thames Street beyond the Guildhall. Left, night-time illustration of the original lighting installation, with a more detailed view of the column and lantern used in the centre day-time view, taken whilst redecoration was in progress on the buildings fronting the road. Right, High Street as it now appears by night, with street lighting provided from lanterns mounted on brackets fixed to the wall of the buildings (one of the lanterns may be discerned unlighted in the left hand picture). Note also the new pole-top mercury fluorescent lighting provided on short poles on the wall in front of the church on the right of the picture.

mercury fluorescent lanterns on short tubular steel poles. The nearby war memorial has been lighted by two 150w pressed-glass floodlamps in weather-proof fittings to contrast with the sodium yellow of the church and a similar technique has been adopted for the King George V Memorial, where five pressed-glass lamps providing white light directly on the face of the Memorial contrast with sodium lighting of the surrounding trees in the background effected from a single floodlighting lantern.

The scheme was inaugurated by Her Majesty on May 12, in the presence of Mr Duncan Sandys, MP, President of the Civic Trust; the Mayor and Corporation of Windsor and civic authorities from the whole of Britain. In her speech of inauguration, the Queen expressed her interest and pleasure in the scheme, which followed naturally from the close association of the town with the Castle; she saw such schemes as a way of giving expression to the strong sense of civic pride felt by many people. In expressing thanks for Her Majesty's presence, Mr Sandys supported forthrightly the decision to use bright gay colours for the redecoration of the area; he pointed out that instead of trying to blend the colours of the Castle and the town, the aim had been to achieve a bold contrast to let each provide a setting for the other.

Conclusion

It is as well to remember that schemes of this kind depend for their success almost entirely on the willingness of the individual to participate; neither the local authority, nor the Chamber of Trade, nor the Civic Trust has any powers other than that of persuasion. The extent to which any particular proposals may actually be implemented depends upon individual taste, individual readiness to meet the costs involved, individual trading problems, individual house styles and redecoration programmes together with the incidence of a multiplicity of factors, often conflicting. It is not always possible, moreover, to achieve all that was originally desired. Of Windsor, the Civic Trust comments that there remain certain features between the river and Park Street which it would liked to have changed but which, usually on grounds of cost, could not be undertaken. It cites as examples the King George V memorial which, originally designed for a site bounded by buildings in Datchet Road, now sits, since the demolition of the buildings, uneasily on an axis which no longer relates to the area. The statue of Queen Victoria might, it is suggested, be moved to the grassy embankment surrounding Salisbury Tower or to the new paving at Park Street corner.

Top, daytime view of the new face of Windsor, showing three of the buildings fronting the High Street just after they were re-decorated; the nearest building carries on its front one of the street lighting brackets, although the lantern had not been attached when this was taken. Centre, left, is the view of Thames Street before improvement; the clutter on the right-hand pavement has now gone, including not only the street lighting column but also the wall, which marks the boundary of Windsor Castle. A grassy embankment now sweeps up from the pavement edge to the base of Castle battlements themselves. Centre, right, the parish church of St John, at night, with the War memorial in the foreground. Left, the lower end of Thames Street as it curves round the Castle on its way to the river bridge, as it now appears; what is perhaps most striking about this view is the almost complete absence of obstructions on the pavement, whilst the effect of the street lighting is particularly well shown.

Home Lighting on Display

SOME USEFUL IDEAS on that particularly difficult subject, domestic lighting, were to be gained last month from the British Lighting Council's showrooms in Brettenham House, where the Council had arranged an exhibition with the theme 'Lighting for the small home' although the ideas expressed could well be applied to a home of almost any size. Three of the showroom areas were given over to displaying typical settings for kitchen, lounge and bedroom, as shown in the illustrations on this page, and there was also a display by several firms of fittings they offer for home use.

For the kitchen, the setting showed how lighting should be placed in relation to the various tasks performed there. General lighting was provided by a ceiling batten fitting operated on a tungsten lamp ballast circuit, supplemented by fluorescent lamps installed beneath wall-mounted cupboards to give a high level of illumination on work surfaces below. A ceiling-mounted, down-lighting internal reflector, floodlamp was sited to throw light on to the cooker hob, and a pendant of concentric copper and matt black cylinders provided a decorative accent whilst giving some useful light on a further work surface.

The lounge offered a variety of lighting ideas whilst illustrating the value—both functional and decorative—of a liberal number of portable units and at the same time hammering once again the essential requirement of an adequate number of socket-outlets from which they could be used. Recesses normally used for display purposes were converted into interesting visual features round a fireplace and there was an example also of the use of a down-lighting wall-mounted fluorescent fitting for curtain pelmet lighting. The feature of this setting was that it contained a sufficient variety of lighting techniques to demonstrate just how easily it is to use lighting to change the mood of a room.

The bedroom introduced cornice lighting on a large scale, used to provide the main lighting for the room and so placed as to give the greatest amount of light at the bed head, which is one of the places where it is wanted. Decorative accent was provided by a three-lamp pendant designed in the contemporary idiom. Another feature was the use of an alcove for a dressing table, where the lighting for the user's face could be conveniently provided from two wall-bracket pendants on the side walls of the alcove, supplemented by a fluorescent fitting giving up and down lighting mounted on the wall just above the mirror.

Although the exhibition closed at the end of July, the principles it was intended to show in practical application are explained in detail with suitable examples in a booklet the BLC has issued on this subject. The booklet covers the three main rooms of the house and provides some down-to-earth guidance in the form of a squared sheet of paper on which users are invited to draw out a plan of their present rooms and then, with the aid of some simply prepared data on lighting fittings in common domestic use, to determine for themselves how far their existing lighting is adequate. One can imagine that the booklet will find a ready demand from the public, particularly if displayed in service centres, retail lighting departments and on lamp sales counters.

mercury fluorescent lanterns on short tubular steel poles. The nearby war memorial has been lighted by two 150w pressed-glass floodlamps in weather-proof fittings to contrast with the sodium yellow of the church and a similar technique has been adopted for the King George V Memorial, where five pressed-glass lamps providing white light directly on the face of the Memorial contrast with sodium lighting of the surrounding trees in the background effected from a single floodlighting lantern.

The scheme was inaugurated by Her Majesty on May 12, in the presence of Mr Duncan Sandys, MP, President of the Civic Trust; the Mayor and Corporation of Windsor and civic authorities from the whole of Britain. In her speech of inauguration, the Queen expressed her interest and pleasure in the scheme, which followed naturally from the close association of the town with the Castle; she saw such schemes as a way of giving expression to the strong sense of civic pride felt by many people. In expressing thanks for Her Majesty's presence, Mr Sandys supported forthrightly the decision to use bright gay colours for the redecoration of the area; he pointed out that instead of trying to blend the colours of the Castle and the town, the aim had been to achieve a bold contrast to let each provide a setting for the other.

Conclusion

It is as well to remember that schemes of this kind depend for their success almost entirely on the willingness of the individual to participate; neither the local authority, nor the Chamber of Trade, nor the Civic Trust has any powers other than that of persuasion. The extent to which any particular proposals may actually be implemented depends upon individual taste, individual readiness to meet the costs involved, individual trading problems, individual house styles and redecoration programmes together with the incidence of a multiplicity of factors, often conflicting. It is not always possible, moreover, to achieve all that was originally desired. Of Windsor, the Civic Trust comments that there remain certain features between the river and Park Street which it would liked to have changed but which, usually on grounds of cost, could not be undertaken. It cites as examples the King George V memorial which, originally designed for a site bounded by buildings in Datchet Road, now sits, since the demolition of the buildings, uneasily on an axis which no longer relates to the area. The statue of Queen Victoria might, it is suggested, be moved to the grassy embankment surrounding Salisbury Tower or to the new paving at Park Street corner.

Top, daytime view of the new face of Windsor, showing three of the buildings fronting the High Street just after they were re-decorated; the nearest building carries on its front one of the street lighting brackets, although the lantern had not been attached when this was taken. Centre, left, is the view of Thames Street before improvement; the clutter on the right-hand pavement has now gone, including not only the street lighting column but also the wall, which marks the boundary of Windsor Castle. A grassy embankment now sweeps up from the pavement edge to the base of Castle battlements themselves. Centre, right, the parish church of St John, at night, with the War memorial in the foreground. Left, the lower end of Thames Street as it curves round the Castle on its way to the river bridge, as it now appears; what is perhaps most striking about this view is the almost complete absence of obstructions on the pavement, whilst the effect of the street lighting is particularly well shown.

Home Lighting on Display

SOME USEFUL IDEAS on that particularly difficult subject, domestic lighting, were to be gained last month from the British Lighting Council's showrooms in Brettenham House, where the Council had arranged an exhibition with the theme 'Lighting for the small home' although the ideas expressed could well be applied to a home of almost any size. Three of the showroom areas were given over to displaying typical settings for kitchen, lounge and bedroom, as shown in the illustrations on this page, and there was also a display by several firms of fittings they offer for home use.

For the kitchen, the setting showed how lighting should be placed in relation to the various tasks performed there. General lighting was provided by a ceiling batten fitting operated on a tungsten lamp ballast circuit, supplemented by fluorescent lamps installed beneath wall-mounted cupboards to give a high level of illumination on work surfaces below. A ceiling-mounted, down-lighting internal reflector, floodlamp was sited to throw light on to the cooker hob, and a pendant of concentric copper and matt black cylinders provided a decorative accent whilst giving some useful light on a further work surface.

The lounge offered a variety of lighting ideas whilst illustrating the value—both functional and decorative—of a liberal number of portable units and at the same time hammering once again the essential requirement of an adequate number of socket-outlets from which they could be used. Recesses normally used for display purposes were converted into interesting visual features round a fireplace and there was an example also of the use of a down-lighting wall-mounted fluorescent fitting for curtain pelmet lighting. The feature of this setting was that it contained a sufficient variety of lighting techniques to demonstrate just how easily it is to use lighting to change the mood of a room.

The bedroom introduced cornice lighting on a large scale, used to provide the main lighting for the room and so placed as to give the greatest amount of light at the bed head, which is one of the places where it is wanted. Decorative accent was provided by a three-lamp pendant designed in the contemporary idiom. Another feature was the use of an alcove for a dressing table, where the lighting for the user's face could be conveniently provided from two wall-bracket pendants on the side walls of the alcove, supplemented by a fluorescent fitting giving up and down lighting mounted on the wall just above the mirror.

Although the exhibition closed at the end of July, the principles it was intended to show in practical application are explained in detail with suitable examples in a booklet the BLC has issued on this subject. The booklet covers the three main rooms of the house and provides some down-to-earth guidance in the form of a squared sheet of paper on which users are invited to draw out a plan of their present rooms and then, with the aid of some simply prepared data on lighting fittings in common domestic use, to determine for themselves how far their existing lighting is adequate. One can imagine that the booklet will find a ready demand from the public, particularly if displayed in service centres, retail lighting departments and on lamp sales counters.

Lighting Conferences

(1) Associazione Italiana di Illuminazione - Turin

(2) Association Française de l'Eclairage - Rouen

(1) A.I.D.I. Turin

THE ASSOCIAZIONE ITALIANA DI ILLUMINAZIONE, which is the Italian equivalent of The Illuminating Engineering Society and which was formed only in 1959, held its first annual technical conference in Turin from May 11 to 13. It was attended by 400 delegates including representatives from Britain, Belgium, Czechoslovakia, France, Germany, Holland, Israel and the USSR in addition to lighting engineers from all parts of Italy.

The British delegates included Mr J. M. Waldram, Mr H. G. Campbell, Mr G. F. Cole (Secretary IES), Mr A. G. Penny, Mr A. W. Gostt, and Mr J. O. K. Purdy.

The timing of the conference coincided with the beginning of the celebrations in Turin of the centenary of the unification of Italy. The Italia '61 Exhibition, though not at that time complete, was one of the places visited by delegates. Many buildings and monuments were floodlit during the conference, the main theme of which was exterior lighting.

The organisation of the meeting, which was of a very high order, was in the hands of Mr Lino Richard, Vice-President of AIDI. The meetings were held at the Unione Industriali di Torino where there are two excellent lecture theatres. The larger theatre was used for the formal opening ceremony and the subsequent meetings took place in the small theatre. This latter, which seats about 400, was full to capacity for all the technical meetings.

The conference was opened by the Mayor of Turin following which the AIDI President, Mr Piero Anfossi, spoke of the growing interest in lighting matters in Italy, which had given rise to the formation recently of the AIDI. Following this an address was given by Professor Raverdino, a well-known ophthalmologist, on lighting and vision.

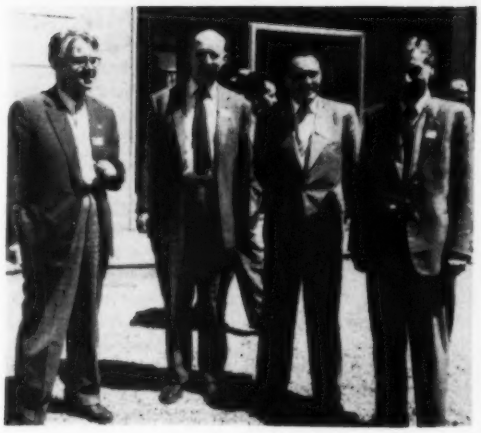
Included in the programme were two technical visits. The first of these was to the Fiat motor works in Turin where parties of delegates were conducted through the various workshops in motor-coaches. After a tour of the works and after seeing the final assembly lines, the coaches were driven on the test track where they did a couple of circuits at high speed. The other visit was that to the Italia '61 Exhibition where at that time interest was centred mainly on the International Labour Exhibition. A brief report on the new building housing the exhibition is given on page 246.

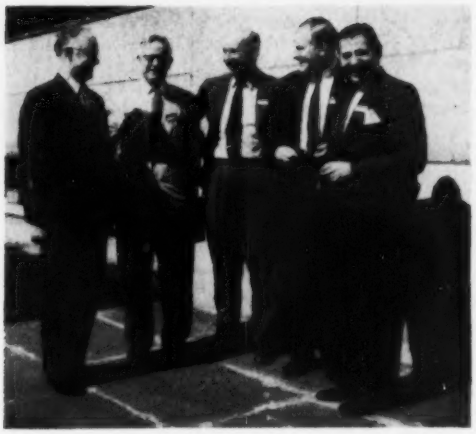
Of the 17 lectures at the conference, 13 were devoted to street lighting. Several of the lectures were given by visitors from other countries so that together they formed a very useful review of work being done on a number of aspects of street lighting in Europe. Mr L. Gaymard (Paris) gave a general survey of European street lighting practice and expressed the wish for more standardisation of lighting equipment and techniques between countries in Europe. The situation in Italy was summarised by Mr L. Novelli (Milan), and Mr von der Trappen (Hamburg) dealt with street lighting in Germany. Mr G. Smiatek (Erlangen) described investigations into the lighting of busy thoroughfares in towns and cities and Mr J. M. Waldram presented a shortened version of the paper he gave recently to the IES (Transactions **26**, No. 2) on visual problems on motorways, in which he described recent studies to compare night-time driving conditions on motorways with those on other traffic routes, and stated a case for fixed lighting.

Mr J. B. de Boer (Eindhoven) described laboratory model tests carried out to study problems of the lighting of entrances and exits to tunnels, and M. Paul Massart (Belgium) spoke on luminance of the road surface as a measure of the quality of a street lighting installation. The requirements which should be fulfilled by street lighting luminaires for main traffic routes were described by Mr H. Adam (Nancy), and Mr Andre Boereboom (Belgium), who

The president of the AIDI, Mr Piero Anfossi, speaking at the opening session. On his right is Mr Lino Richard.

A general view of the audience during one of the papers.





Right, Mr Gourev (USSR), Mr A. G. Penny, Mr Svehla (Czechoslovakia) and Mr Obstrovsky (USSR). Far right, Mr A. W. Gostt, Mr J. M. Waldram, Mr Penny, Mr J. O. K. Purdy and Mr H. G. Campbell.

is Chairman of the CIE Street Lighting Committee, gave some details of the results which had so far been obtained from the trial installations based on British and Continental street lighting practice near Brussels. Lamps for street lighting were dealt with in a lecture by Mr C. Carosio (Milan), Mr G. Cova (Turin) spoke on the rapidly increasing street lighting load which has to be met by the supply authorities, and Mr C. Passerini described the re-lighting programme of the city of Como.

Other aspects of exterior lighting were dealt with by Mr V. Benzio (Milan), who dealt with the use of discharge lamps for floodlighting, and Mr R. Grandi (Bologna) and Mr H. Gertig (Munich), who dealt respectively with the optical requirements of projectors for sports arenas and the design of sports lighting installations.

One of the few papers not on street lighting was that presented by Mr Cole, who described the work which had led to the new IES Code and some of the recommendations which are included in the Code. He included in his presentation the film dealing with the IES glare index system. Reactions to the new Code by Italian lighting engineers and engineers of other countries present at Turin were extremely favourable. For example, recommended levels of illumination were thought to be very practical whilst the glare recommendations were generally acclaimed to be a great advance in lighting technique. Such comments were not made in a discussion of the paper by Mr Cole, but were contributed at various informal discussions in the course of the meeting. Some delegates from countries where lighting techniques are not as far advanced as they are in Britain felt that the new Code was too much concerned with technicalities and expressed the opinion that whilst such a Code was of great value to lighting engineers, it was too technical for them to use to encourage users to take more interest in lighting matters.

The final function of the Conference was a dinner on the Saturday evening. Mr Anfossi said that he and his colleagues had been greatly encouraged by the attendance; the considerable number of delegates from so many other countries had turned what was originally thought of as a purely national meeting into an international one. Mr Andre Boereboom expressed thanks on behalf of visitors from other countries for the hospitality they had received and congratulated the AIDI, and in particular Mr Lino Richard and his staff, on the excellent organisation. He said the papers and discussions on street lighting had been most valuable and he emphasised the great responsibility that rested on the shoulders of lighting engineers in all countries to produce the best possible street lighting in an effort to reduce the appalling number of road accidents which was a matter of great concern in all countries.

The AIDI is to be congratulated on what was undoubtedly a most successful conference; it has set itself a high standard for the future both in the technical content of the meeting and in its organisation.

Palazzo del Lavoro, Turin

As TURIN WAS THE CENTRE of the activities which led to the proclamation of 1861, it was chosen as the venue of three exhibitions to celebrate the centenary of the unification of Italy; these are the Historical exhibition at the Carignano Palace, the Regional exhibitions which show the history and activities of the regions which were combined to form modern Italy, and thirdly the International Labour exhibition which provides a panorama of the developments of the last hundred years in science, technology and social life. It is this latter exhibition which is housed in the new Palace of Labour on the exhibition site on the west bank of the River Po.

The Palace of Labour was designed by Pier Luigi Nervi in co-operation with his son Antonio. It is a square building with 525 ft sides, the roof of which is divided into 16 squares each of which is supported by one 82 ft high concrete column. From the top of each column 20 tapered steel ribs radiate out as a series of spokes to carry the steel roof. Each of the squares supported by each column is independent of the others and the only connection between them are glass roof-lights from which are suspended rows of 400w colour corrected mercury lamps, 22 per side of each square section. Mounted at the bottom and on one side (always the same side) of the radiating spokes are rows of fluorescent lamps which produce an interesting pattern of light on the grey painted ceiling which not only appears to change as the visitor moves around the building but also includes some colour changes. The effect at night seen through the curtain wall on all four sides of the building is that the columns, though enormous, are relatively inconspicuous and the roof appears to be floating on light. Over 2,000 40w and over 4,000 20w fluorescent lamps are used; in addition there are over 300 tungsten spot lamps (300 w) around the perimeter.

The layout of the present exhibition inside Nervi's building was designed by Gio Ponti. The centre of the building is occupied by Italian exhibits and the perimeter is given over to exhibits from 16 countries and a number of international organisations. Separating these two main sections is an irregular circulation area. The great height and size of the building itself enable each of the various national exhibits to be on the grand scale under the 'sky' provided by the roof of the building. Whilst the central Italian exhibit is on one level and is vertical in design, the perimeter exhibits are on two floors and designed on horizontal lines. Walls made of aluminium tubular scaffolding 'filled in' with neutral colour reeded plastic sheets separate the various sections; they look rather dull (the use of some colour might have been better) compared with the high standard of the building itself and the majority of the exhibits.

We hope to give more details of the lighting of the Italia '61 Exhibitions in a later issue but in the meantime would warn anyone going to Italy before the end of October not to miss this particular exhibition. The Palazzo del Lavoro is only one, though undoubtedly the most exciting, of the exhibition buildings and there is plenty to occupy one's time and thoughts in Turin this summer.

The photographs on this page are reproduced with acknowledgment to 'The Architect & Building News'

(2) A.F.E. Rouen

LIKE THE ITALIAN MEETING, the AFE meeting, held in Rouen from May 29 to 31, under the Presidency of Mr Andre Hertzog, had an international flavour, including amongst the 250 or so delegates representatives from Belgium, Britain, Germany, Holland, Italy, Israel, Spain, Switzerland and Yugoslavia. The delegates from Britain were Dr R. G. Hopkinson of the Building Research Station, Mr E. H. Nelson of the GEC Research Laboratories, and Mr G. F. Cole, Secretary of the IES.

During the course of the meeting many famous buildings in Rouen, including the Cathedral and the church of St Maclou, were floodlit.

Nine technical papers were presented, fewer than the usual practice of the AFE on such occasions. This was an advantage as it allowed more time for the presentation of each paper and also more time for discussion.

The first paper of the conference was given by Dr Merry Cohu who, having been responsible for its preparation, described the new French lighting code.* In the past the French code has been modelled very closely on the British one and though note has obviously been taken of the work incorporated in the new IES Code the two documents are very different in content. It has to be remembered, however, that the audiences at which these publications are aimed are different. The French code is published as a joint effort between the AFE and the Institut National de Sécurité who ensure a very wide distribution of the document amongst factories, employers, etc. Its approach is, therefore, a little more basic. On the whole the levels of illumination recommended for different visual tasks and locations follow the British figures fairly closely but the schedule gives not only a minimum illumination but also a recommended value, the latter being 50 to 100 per cent greater than the minimum. The French code retains the size and contrast 'ladder' which some people were sorry to see dropped from the new British Code. Dr Cohu said that he and his colleagues felt that the subject of glare indices was too complicated a matter to include in their recommendations at this stage though they may consider incorporating this important development in future editions. (Some further comments on the new French code are given on page 226.)

Following Dr Cohu, Dr Hopkinson spoke on the British Code. It was apparent from the discussion that many of those present needed time to digest some of the new features of the Code. Particular interest was shown in the recommendations for permanent supplementary artificial lighting on which it was understood French lighting engineers were undertaking some practical field studies.

Lighting in various forms of transport was dealt with in a number of papers including those by Mr E. Barthes, who discussed special problems connected with such places as radar rooms, ships, etc., Mr Benquey (aircraft), Mr P. Blaise (marine lighting), and Mr R. Blancherie (railway carriage lighting).

Two papers on lamps were given. Mr Nelson (GEC) described current work in the development of high pressure mercury lamps including electrodes,

Top, Mr A. Vallat (Secretary AFE), Mr A. Hertzog (President AFE) with, on his left, the Préfet of Seine-Maritime. Centre, Mr E. M. Nelson, Prof Desjardin and Mr P. Lemaigre-Voreaux. Left, Mr J. Dourgnon, Prof Y. Le Grand and Dr R. G. Hopkinson. Below, view of the audience at a technical session.

* Recommendaton Relatives a l'Eclairage des Batiments et de leurs Annexes. (Association Francaise de l'Eclairage, 33 Rue de Naples, Paris 8e.)

Top, the spires of Rouen Cathedral and the church of St Maclou; right, the gate-house to the Aitre St Maclou; below, the west front of Rouen Cathedral.

gas filling and phosphors, possible new types of lamps, and discharges through mixtures of different metallic vapours.

Dr M. Bierman (Eindhoven) gave a very interesting paper reviewing progress in iodine-tungsten lamps. He pointed out that though work on these lamps was being done in many countries the greatest progress had been made in the USA where a number of different types of lamps were now available and where some installations of the lamps were already in use. The light output watt for watt is not significantly greater than the normal tungsten lamp and their life is not much more, but their main advantage is maintenance of lumen output right up to the time they fail. He demonstrated a number of these lamps and compact fittings which had been designed for them. Applications which are being considered include lighting of streets, sports arenas, airfields, floodlighting and different kinds of photography including use in portable flash equipment.

A fascinating lecture on the problems faced by lighting engineers in using new light sources was given by Mr Jean Dourgnon. After dealing briefly with the development and application of light sources up to the fluorescent lamp (which he pointed out was by no means generally accepted outside factories, etc., as a convenient light source) he said that lighting engineers were too preoccupied with luminous efficiency; the quality of lighting installations, he said, should no more be assessed on the basis of efficiency of conversion of energy than the price of a concert ticket should be based on decibels. Neither was lighting only a matter of physiological optics; we certainly need light to see by but we also need light for other reasons such as effect. One reason why new light sources are slowly adopted is that the interiors of buildings are not constructed in a form suitable to receive them. Is it not possible, he asked, to incorporate in prefabricated structures means whereby the occupant can change his light sources as he pleases?—though one possible difficulty, he pointed out, was that houses were built to last much longer than lamps.

On the last morning an address was given by Prof Yves le Grand, who spoke on 'Science et Science Fiction de l'Eclairage'. In his talk he dealt, amongst other things, with the highly complex subject of optical masers, or lasers as some people prefer to call them. These devices produce almost perfectly parallel-sided beams of light and Prof le Grand described how they could be used as a means of communication between space ships over astronomical distances.

This concluded the formal sessions of the conference and in the afternoon delegates took part in a trip by boat and coach to Tancarville near the estuary of the Seine to see the new bridge which was opened last year. During the return to Rouen in the evening delegates saw the floodlighting of the Abbaye de Jumiege—an installation which had much in common with that at Fountains Abbey.

LIGHTING ABSTRACTS

OPTICS AND PHOTOMETRY

535.24

994. Photometry of luminaires using highly-loaded fluorescent lamps.

G. A. HORTON, R. R. FRENCH and J. B. ARENS, *Illum. Engng.*, **56**, 179–186 (*March* 1961, *Section* 2).

In order to perform 'point source' photometry with 8 ft extra-high output fluorescent lamps, a minimum photocell distance of 40 ft is required. This has been achieved in a photometric laboratory of 12 ft nominal ceiling height by means of a specially constructed photometer in which two inclined mirrors split the image of the lamp or fitting horizontally into two parts. Extreme care needs to be taken that the migration of mercury along the length of the lamp bulb during initial stabilisation is not disturbed by the photometric procedure. Coefficients of utilisation worked out from photometric measurements obtained with lamp/photocell distances of 10 ft and 40 ft gave satisfactory agreement with data obtained in an interflectance room where the fittings are mounted at a height above the working plane equal to or less than the length of the fittings. P. P.

995. Photometry of low-mounted linear sources. 535.24

D. E. SPENCER and C. E. KOWALSKI, *Illum. Engng.*, **56**, 190–194 (*March* 1961, *Section* 2).

Candlepower contours for an extended source such as a fluorescent fitting are only reliable at relatively large operating distances. Additionally, the illuminated surface is usually assumed to be uniformly diffusing. In some circumstances, particularly where reflector fittings at low mounting heights are used to light a roadway, the candlepower contours are invalid and the roadway surface is anything but uniformly diffusing. Relatively simple photometric measurements are suggested which, in conjunction with data on the illumination from equivalent rectangular sources and on the reflecting characteristics of imperfectly diffusing surfaces, will enable the photometric appearance of these surfaces, when illuminated obliquely by fluorescent fittings, to be determined. P. P.

996. Judgment of colour. 535.6: 628.97

H. SKÖLD, *Ljuskultur*, 45–47 (No. 1, *Jan.-March* 1961). *In Swedish.*

A collaboration between a lamp firm and the technical staff of the Swedish National Museum has resulted in a colour-judging cabinet (Colorette) for use in the museum's work. It was found that good 'artificial' daylight was preferred because it is stable, and the cabinet can be designed to minimise or eliminate the effects of contrast with surrounding objects. The system can also be used as a lighting unit to be installed temporarily over a table, etc. It employs specially made flourescent tubes. The colour co-ordinates of the light are $X = 0{\cdot}360$, $Y = 0{\cdot}351$ and $Z = 0{\cdot}289$, with a colour temperature of 4,500°K. The spectral composition of the light is given in eight bands of 400 Å width beginning at 3,800 Å as 0·015, 0·37, 0·49, 7·34, 41·2, 38·6, 11·5, and 0·50 respectively. R. G. H.

997. The theory of colour measurement. 535.64

G. TONNQUIST, *Ljuskultur*, 99–108 (No. 2, *April–June* 1961). *In Swedish.*

Definitions of light and colour are given, and the principles of colour measurement discussed with special reference to the spectral distribution of light energy and the CIE tricolour system. The discrepancies between the 1931 CIE 'standard observer' and visual observations are discussed briefly, noting the difficulties facing any revision of the 2° field data. R. G. H.

LAMPS AND FITTINGS

998. Research on street lighting glassware breakage. 621.329

H. A. VAN DUSEN, Jr, *Illum. Engng.*, **56**, 150–156 (*March* 1961, *Section* 2).

Breakage of glass street lighting fittings is found to be mainly due to thermal shocks caused by strong winds and rain. The precise meteorological conditions have been studied for a number of different designs of fitting using a full-scale outdoor test laboratory. A measure of the thermal shock breakage resistance for a given glassware-fitting combination is given by the 'safe operating wattage' which is affected by the operating temperature and the thermal shock resistance. A simple cyclic spray test has been developed for street lighting glassware, an appendix specifying the requirements to meet this test. P. P.

621.329

999. Mercury ballast as an integral part of the street lighting luminaire.

R. W. HAGGSTROM, *Illum. Engng.*, **56**, 159–164 (*March* 1961, *Section* 2).

The introduction in 1958 of mercury vapour lamps with oxide electrodes has meant lower starting voltages which can be met by ballasts built into the fittings. In this way the complexity of remotely operated ballasts is overcome. Certain design requirements need to be met in order that the ballast and the power factor correction capacitor are not over-heated by their close proximity to the lamp. Reactor and constant-wattage ballasts are both suitable for these integral fittings, the latter having considerable advantages when the fittings are used in street lighting installations. P. P.

1000. Derivation of ballast-lumen ratio. 621.329

J. C. HEFFERNAN, *Illum. Engng.*, **56**, 166–169 (*March* 1961, *Section* 2).

The extreme sensitivity of extra-high output (1·5 amp) fluorescent lamps to air currents and temperature makes it difficult for testing laboratories to check on the performance of the associated ballasts. Various short-cut methods have been devised but involve the use of expensive equipment. A newly developed testing procedure enables per cent light output to be calculated from a basic formula which is dependent on empirically determined relationships between luminous efficiency and lamp current and between lumen output and power input at constant lamp current. P. P.

621.327.43

1001. Lamp performance related to reference and commercial ballasts.

J. F. GILMORE and R. E. HANSON, *Illum. Engng.*, **56**, 173–177 (*March* 1961, *Section* 2).

In addition to mercury vapour, fluorescent lamps frequently contain a mixture of two or more rare gases, such as argon, neon or krypton, to improve the lamp's performance. The effect of the composition and pressure of the gas filling on the lamp operating characteristics has been determined for reactor and series-lead ballasts. In this way the design requirements for a fluorescent lamp to give optimum performance on a particular type of ballast can be predicted. It is shown, though, that this performance is not necessarily repeated with a change in the type of ballast. P. P.

621.327

1002. Multilayer and flexible single-layer electroluminescent lamps.

R. J. BLAZEK, R. W. WOLLENTIN and H. B. BULLINGER, *Illum. Engng.*, **56**, 195–202 (*March* 1961, *Section* 2).

The development of electroluminescent lamps having a rigid or flexible base material and operating with up to three colours is described. Plastic films 0·005–0·01 in. thick are used for the flexible bases with sputtered composite coatings of gold and ferric oxide to provide conducting layers of high light transmission. By building up a sandwich of transparent phosphors and interleaved conducting coatings, lamps emitting green, blue and red light separately or simulatenously have been produced. Constructional details of the electrodes and 'bus bar' contacts are given. P. P.

1003. Fluorescent lamps for photo-duplicating service. 621.327.43

C. J. BERNIER, *Illum. Engng.*, **56**, 205-208 (*March* 1961, *Section* 2).

Recent advances in the development of light-sensitive papers of greater sensitivity has meant that the merits of the fluorescent lamp in terms of small heat development and simple operation can be taken advantage of in the design of light-copying devices. Matching of the spectral sensitivity of the particular lamp chosen to the spectral response of the printing paper is important. P.P.

MISCELLANY

Correspondence

The gap at the top

Although I have not carried out any research on the subject of the editorial in the July issue I have a feeling that had you carried your own researches a little further you would have seen that the situation is even more complicated than you would suggest.

I think it is not always appreciated that many of the Top People who are now in their fifties would not be there but for the gap caused by the almost total elimination of a generation in the 1914/18 war. These fortunate people are likely to occupy top positions for at least another five years, and it is understandable, therefore, that men seven or eight years their junior do not occupy the public eye. The simple fact is that there is no room for them at the top now, nor will there ever be.

It is equally understandable that men in and around the forty mark are now attracting attention. They may be compared with young stags fighting for the leadership which will be theirs in another five years time; but when they get there, say at the age of 45, and are able to contemplate with satisfaction the prospect of 15 or perhaps 20 years at the top, they will in so doing declare that there is no prospect for any of their would-be successors who are now over the age of 20. Putting it more simply, might I suggest that in the past, a ten-year period at the top was usual, whereas today we are moving into the state when the top men can expect to be there for 20 years. There is, in fact, less room at the top unless the industry is expanding very rapidly.

A. G. PENNY
London

Overseas News

THE LAST TEN DAYS OF JUNE saw the largest-ever General Meeting of the International Electrotechnical Commission, held at Interlaken. About 950 delegates, from 28 countries, attended the meetings of 48 committees, which included the IEC Council and the Committee of Action. The largest delegation was that from the UK; it was 136 strong, led by Mr J. O. Knowles, chairman of IEC's British National Committee and, as our picture shows, included several IES members. Their preoccupation was primarily with IEC Committee 34A, concerned with the standardisation of electric lamps and among subjects discussed were international specifications for incandescent lamps, fluorescent lamps and starters and high-pressure mercury lamps. Other meetings dealt with interchangeability of lamp caps and holders, and ballasts and fittings for fluorescent tubes. As a result of the meeting as a whole, 24 documents were approved for publication as IEC Recommendations and 74 documents were approved for circulation under the 'Six months rule'. As a result of growing expenditure, all national committees are to be asked to increase their subscriptions by 40 per cent, whilst the treasurer is to look into the question of redistribution of subscriptions according to the capacity of various countries to pay. The new president is Prof G. de Zoeten, Netherlands, and the UK joins the Committee of Action.

Some of the British delegates at the Interlaken meeting of the IEC; from left to right, G. A. B. Blow, F. Widnall, Dr J. Barnett and A. G. Penny.

IES News

THE NEW CODE is selling well and already a reprint is being considered. In the meantime, however, the absence of Technical Report No. 2, 'Coefficients of Utilisation—The British Zonal Method', has presented some difficulties but it is hoped that it will be available soon after this note is read. The publication of this Report may answer some of the technical queries which arise in connection with the use of the Code. The Technical Committee is, however, prepared to answer queries which may arise out of both the Code and the Report—probably through the medium of *Light and Lighting*. Any such queries should be sent to the IES Secretary. All that is asked is that the queries be set out as clearly and simply as possible.

THE OPENING MEETING of the 1961-2 session in London will be at the Royal Institution, Albemarle St., W1, at 6 p.m. on Tuesday, October 10. At this meeting Mr W. T. Souter will deliver his presidential address which is to deal with the technical work of the Society and, we understand, to look ahead at possible developments of this important aspect of the Society's work, and discuss its value to the lighting industry. As Mr Souter has been chairman of the IES Technical Committee since its re-formation in 1957 his choice of subject is not entirely unexpected, and indeed is a very good one at this stage of the Society's development. The programme of Society meetings will be issued in due course. Two visits will be included in the London programme; one to the Hirst Research Centre of the GEC, the other to the new Shell building on the South Bank.

THE NEXT IES SUMMER MEETING will take place at Folkestone from May 6-9, 1962, with its headquarters at the Grand Hotel. Details of the programme will be issued later this year, but it is understood that the programme will again include one whole day of technical discussion group meetings—a feature which proved very popular and useful when first introduced at the last Summer Meeting.

THE RESULT OF THE BALLOT for eight places amongst ordinary members of Council as from October next was announced at the annual general meeting of the Society in May as follows: G. E. Kemp, A. M. Marsden, A. H. Olson, W. B. Parkinson, M. W. Peirce, W. L. J. Potts, J. S. Preston, John Reid.

MEMBERSHIP FIGURES so far in the current year show a net increase of just over 40 new members after allowing for the inevitable resignations and losses which occur. Members are reminded of the need to maintain a steady flow of new entrants to the Society. Forms of application can be obtained from the Secretary who would also be pleased to receive the names and addresses of those to whom forms might be sent.

Educational

DETAILS HAVE JUST BEEN RECEIVED of courses in Illuminating Engineering for the City and Guilds examinations, to be held at the Borough Polytechnic, London, Leeds College of Technology and Salford Technical College. In all cases, courses are being held for both Intermediate and Final examinations and at Borough and Leeds, specific reference is made to the availability of day part-time as well as evening classes. Further details can be obtained from the colleges as under:

Borough, Department of Electrical Engineering and Physics, Borough Road, London, SE1

Leeds, J. Holden, Lecturer in charge of Physics, Calverley St, Leeds 1

Salford, Department of Science and Food Technology, Peel Park, Salford 5.

A NUMBER OF SPECIAL SERIES of lectures for lighting engineers is also being arranged in or near London. There is the Regent Street Polytechnic series on architectural aspects of lighting, to which reference is made in 'Notes and News' on page 226 of this issue. Then the Medway College of Technology is organising a series of ten lectures 'Lighting engineering techniques—with particular reference to industry', commencing on Thursday, October 5, and continuing at weekly intervals until December 7; all lectures start at 6.30 p.m., and lecturers in-

clude H. C. Weston, H. Hewitt, J. S. Smyth and W. E. Harper. Applications should be made by letter to the Head of the Electrical Engineering Department of the College, Horsted, Chatham, Kent.

THE NEW IES CODE forms the basis of a course of five lectures to be held at weekly intervals from November 9 onwards at Battersea College of Technology. The object of the course is to show how the principles put forward in the Code may be implemented in practice. The topics to be dealt with are: (1) The scope and background of the new Code; (2) fitting the lighting to the task: lighting levels and amenity; (3) glare calculations; (4) daylight design; (5) permanent supplementary artificial lighting. Further details may be obtained from the Spectroscopy Department, Battersea College of Technology, London, SW11.

FOR NEXT YEAR, Borough Polytechnic are arranging a course of five lectures for practising lighting engineers, 'Lighting calculations and measurement'. The series will deal with the calculation and measurement of illumination under types of source and for related situations and components, as follows: Jan. 29: Area sources, C. A. Padgham; Feb. 6: Linear sources, W. Bean; Feb. 21: Reflected components, R. H. S. Simons; Feb. 27: Utilisation factors, W. Robinson; March 6: Lighting measurements, J. F. Pickup. Lectures are to run from 6.30 p.m. to 9 p.m.; fee for the course is 15*s*. Further details may be obtained from the Department of Electrical Engineering and Physics.

Personal

After 36 years' service there, Dr W. S. STILES, President of the IES, retired from the National Physical Laboratory at the end of June. He came to the NPL in 1925 from two years as demonstrator in Physics at University College, London, and from one year at the RN Signal School. His work includes a detailed study of the effects on vision of a light source in the visual field which lead to comprehensive methods for evaluating glare and, more recently, research on vision, from which, in collaboration with his colleague Dr B. H. Crawford, he established the highly directional response of the retina, known now as the 'Stiles-Crawford Effect' —a discovery which has had a far-reaching influence on subsequent visual research. During the last war, Dr Stiles rendered notable service which won him the award of the OBE; his advice was sought on a variety of military problems and he undertook extensive laboratory and field studies on service questions connected with visibility. Fundamental work on vision resumed since the war has included the determination of the colour-matching functions of the average eye. The outstanding merit of his work has been widely recognised throughout the scientific world; he was awarded the Carpenter Medal in 1944, delivered the Thomas Young oration in 1955, and was elected to the Royal Society in 1957. We are sure all readers will join with us in wishing Dr and Mrs Stiles a happy retirement.

Obituary

Alfred Eldred Iliffe

It is with great regret that we report the death on July 15 of Mr A. E. Iliffe, MC, Chairman of The Benjamin Electric Ltd. Born at Penge in 1894 he received his training with Napier Prentice at Stowmarket later joining Metropolitan-Vickers and serving as general sales manager with Metrovick Supplies Ltd from 1922-7. He joined Benjamin in 1927 as a Director and General Sales Manager. He became Chairman of the company in 1958.

He was a well-known and active figure in the electrical and lighting industries, and was a prominent member of many trade and professional bodies. He was President of the Electric Light Fittings Association for seven years and he served on numerous committees of BSI, ELFA, ELMA; he also served as vice-chairman of the Electric Fair Trading Council and was a past-President of the Electrical Trades Commercial Travellers Association. He was a member of the Illuminating Engineering Society which he joined in 1928, serving on the IES Council from 1934-37. He was also a Liveryman of the Worshipful Company of Cutlers and a Freeman of the City of London.

In his 34 years with the lighting industry Alfred Iliffe not only saw many changes in the industry but also played a very prominent part in bringing them about. His personality and the enthusiasm with which he applied himself to problems affecting the industry as a whole and to the welfare of those in the industry endeared him to all. He will be greatly missed. We extend our deepest sympathy to his widow, relatives and colleagues.

Postscript

THIS IS THE TIME OF YEAR sometimes called the 'silly season', when nothing ever happens and journalists are at their wits' end to find something to put into their papers. No such difficulty can arise in the world of lighting, where there is always some activity going on somewhere. I thought I would deal this month with the problem of finding a light source for the home lover. The available light sources provided by the lamp manufacturers do not by any means please everyone, but destructive criticism is of very little use without something constructive on offer as well, and so I have dug into the pages of Gilbert White's *Natural History of Selborne* for his prescription for the making of rush lights. You must use the common soft rush, *juncus conglomeratus*, which is ready for plucking just about now. 'Decayed labourers', he tells us, 'make it their business to procure and prepare them'. After gathering they have to be soaked to enable them to be peeled of their outer covering, all but one little strip which supports the pith. They are then left on the grass to 'take the dew' and bleach out, afterwards to be dried in the sun. Finally they are dipped in scalding fat and are then ready for use.

Gilbert White gives some figures for the luminous efficiency of his product. A pound of common grease, he says, may be obtained for fourpence, and about six pounds of grease will dip a pound of rushes such as can be bought for one shilling. Hence a pound of rushes 'medicated ready for use' will cost three shillings. A pound of rushes contains 1,600 individuals, 'each burning one with another for half an hour'. A poor man can therefore purchase eight hundred hours of 'good clear light' for three shillings. 'An experienced housekeeper assures me', he says, 'that one and a half pounds of rushes completely supplies his family the year round'. So in the eighteenth century it cost a farm labourer about one week's wages to light his house for the winter. It costs most of us rather less these days, and I think we get a 'good clear light' provided we follow the IES code, but I pass on Gilbert White's information for those who wish to express their spirit of rebellion against the mass-produced job. One small difficulty will be to find a good supply of *juncus conglomeratus*.

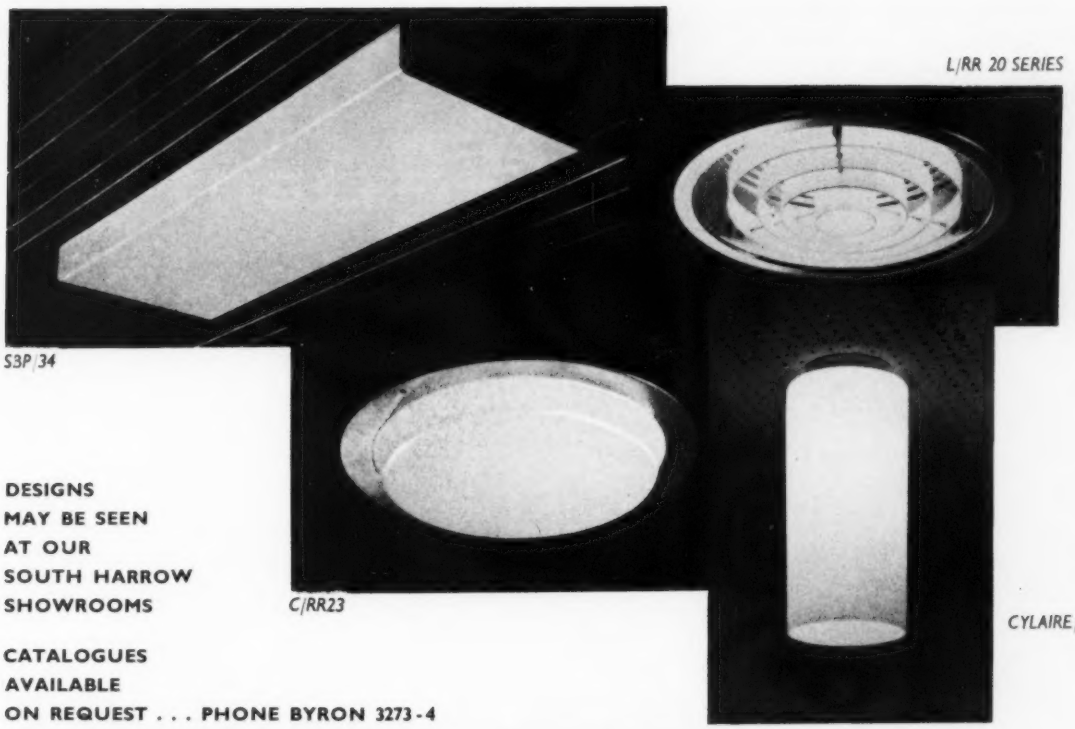
THE SEASON OF LECTURES is once again approaching, and some of us who are pressed into service without the facilities of a big laboratory behind us are often in trouble over illustrations. It is not so difficult for the amateur photographer nowadays to prepare quite good colour transparencies of lighting installations. I would even go so far as to say that it is easier than to get good black and white prints. Naturally only long experience will produce results of professional quality, but the lighting engineer, with his built-in knowledge of light, can do much better than most non-professional photographers. Daylight-type film will serve tolerably well with most fluorescent lighting, although the careful worker will want to use the available correcting filters. A-type film, specially balanced for 'artificial light', must be used with filament lighting.

The exposure should preferably be found by trial, using a good meter as a guide. In using the meter, be sure to screen it from the direct light from the fittings, and remember that colour film tends to be sluggish at low brightnesses—in other words, tend towards over-exposure, especially when there is not much light about. As a rough guide, an interior with about 50 lm/ft^2 will give a fair result with 1/25 second at f.4 or 5.6 with the new fast films like 'super-Ektachrome'; 'Kodachrome' or 'Ilfachrome' need about 1/2 second, resting the camera or holding it firmly up against a wall. It is always wise to take duplicates with one stop smaller and one stop larger than the indicated exposure. This not only takes care of errors in light estimation, but the duplicates are often good enough for use in private, even if not for public showing. Remember also that it is much cheaper, and very much more satisfactory, to take any duplicates on the spot at the time rather than have them made later.

As for the choice of colour film, this of course is rather a tricky subject to tackle, for if I advise you to use Optichrome, the manufacturers of Glamorcolor will take me, or my masters, very much to task. I think I could fairly put it like this. There is one very well known film which is processed by the manufacturer, and nowadays one can be fairly certain of a uniform standard of colour reproduction from this film so that one can predict the result. This film has one fault as far as interiors are concerned—it renders many surface colours in the yellow and cream ranges by one single shade of orange. But for first attempts I would not advise anything else. As experience and skill come, together with a wish to experiment, try one of the films which can be processed by the user. Processing, though tedious, is not in the least difficult, and if the instructions are followed scrupulously the results are often better than the factory-processed job—I am still speaking of photographs of lighted interiors, of course, and only of transparencies. Colour prints are best done by the manufacturer, and they can be very good indeed. If the prints are disappointing, take a good look at the negatives or show them to an experienced friend. If the negatives are good, send them and the poor prints back and ask for replacements, which you will get without argument if your negatives really are good. These prints are made using an electronic eye to judge the exposure and the manufacturers accept the fact that it makes errors now and then. The whole process of mass-producing colour prints is so complicated that rather than cavil at the fact that it occasionally goes wrong, one should marvel that it is done at all.

FOLLOWING MY REMARK about supernumerary rainbows, I have now had the good fortune to see an ice-bow. These are fairly often observed by weather men, but few of the rest of us ever look intently at the sky unless we have the leisure to recline in a deck chair, as I had when I saw mine. It took the form of a complete circle, of radius 22 degrees, around the sun. It was fairly coloured in the spectral sequence, with red on the inside. I have since been told that it was a '22° halo' and that it is caused by refraction and internal reflection in the randomly orientated ice crystals of which the high cirrus clouds are composed. If I had been lucky, I might have seen a pair of 'sun dogs' to the right and left of the sun, but I did not. Further spells in the deck chair are clearly indicated.

'Lumeritas'



DESIGNS
MAY BE SEEN
AT OUR
SOUTH HARROW
SHOWROOMS

CATALOGUES
AVAILABLE
ON REQUEST . . . PHONE BYRON 3273-4

S.L.R. Electric Ltd. WELBECK WORKS, WELBECK ROAD
SOUTH HARROW, MIDDLESEX

American Manufacturer

of patented swivel desk and drawing lamps is looking for a connection with a British manufacturer who is interested in manufacturing fixtures under American licence agreement.

Box No. 732

Is lighting your career?

lightplan

require progressive
senior, junior and trainee
lighting engineers
who really enjoy their work
and its problems.

Interested in creating
new standards of lighting design
with the latest exciting
ranges of fittings.

Keeness essential
excellent prospects
training facilities
staff canteen
car provided where applicable.

applicants should write giving full information to:
Executive Sales Director,
Lightplan Division,
Rotaflex (GB) Limited, 4-10 Nile Street, London, N.1

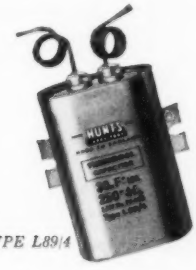
Hunts capacitors for discharge lighting applications

New ranges of capacitors (Types L89/4 and L89/5) employing specially processed impregnants are now available. They are based on Hunts popular designs for fluorescent lighting applications. Full details freely available on request.

TYPE L89/5 STANDARD RANGE *(8 μF to 20 μF at 250 v A.C. wkg.) Temperature Range:* −40°C to +70°C. ideal for Street Lighting applications in all climatic conditions.

TYPE L89/4 "THERMINOL" RANGE *(8 μF to 30 μF at 250 v A.C. wkg.) Temperature Range:* −5°C to +70°C, this range offers a marked reduction in dimensions and is suitable for indoor and temperate climatic conditions.

TYPE L89/5



TYPE L89/4

* Streamlined design
* Housed in non-rusting seamless containers
* Welded lids
* Integral fixing brackets (¼" clear slots at 3½" centres)
* 9" fully insulated leads
* Internal discharge resistor
* Fitted with earthing terminal

MAKERS OF FIXED CAPACITORS FOR ALL RADIO, ELECTRONIC AND ELECTRICAL POWER USES, DRY ELECTROLYTIC, METALLISED PAPER, FOIL AND PAPER, SILVERED MICA, STACKED MICA, CERAMIC, TRANSMITTING TYPES, ETC.

A. H. HUNT (Capacitors) LTD., INDUSTRIAL DIVISION

VULCAN WAY · NEW ADDINGTON · CROYDON · SURREY · TEL: LODGE HILL 2661/4

Head Office: Bendon Valley, Garratt Lane, Wandsworth, London, S.W.18

Factories also in Essex, Sussex and North Wales.

REGISTERED TRADE MARK HUNTS CAPACITORS

The Science and Art of Theatre Lighting

A recent installation at Upper Canada College by Strand Electric Ltd., 36 dimmer circuits controlled by a Strand SR Remote Control board are used. Opposite is a Strand remote control desk for 72 transistor-controlled dimmers.

If your job involves lighting stages, or similarly specialised lighting applications, you will find 'Stage Planning' invaluable reading. Copies are free on request.
As a further help to those interested in the theatrical aspect of lighting Strand Electric have arranged a programme of lectures and practical demonstrations at their theatre in King Street covering stage lighting technique, lighting planning and demonstrations of lanterns and remote lighting control equipment.

THE STRAND ELECTRIC & ENGINEERING CO. LTD., 29 KING STREET, COVENT GARDEN, LONDON, W.C.2. TEMPLE BAR 4444

SPUN CONCRETE LIGHTING COLUMNS

Left to right:—
15ft. ESTATE MINOR "X" with the PHOSWARE P. 142 Fluorescent.
25ft. HIGHWAY "X" with the PHOSWARE P. 143 Fluorescent.
30ft. HIGHWAY "X" with the PHOSWARE P.161 200W. sodium.
35ft. HIGHWAY "X" with the PHOSWARE P.165 200 280W. sodium.

These columns are approved by the Council of Industrial Design and carry the B.S.I. Kite mark which is your guarantee that they comply with B.S.S. 1308/1957.

For modern lighting schemes — the country's leading designs

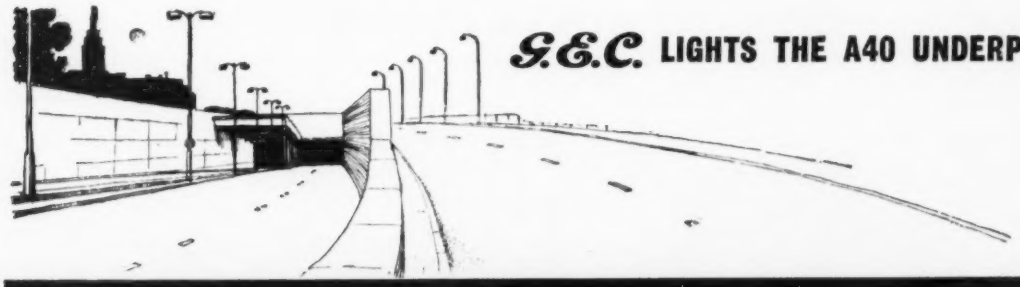
CONCRETE UTILITIES LTD.

Head Office and Works: Ware, Herts. Telephone: Ware 3151/2/3

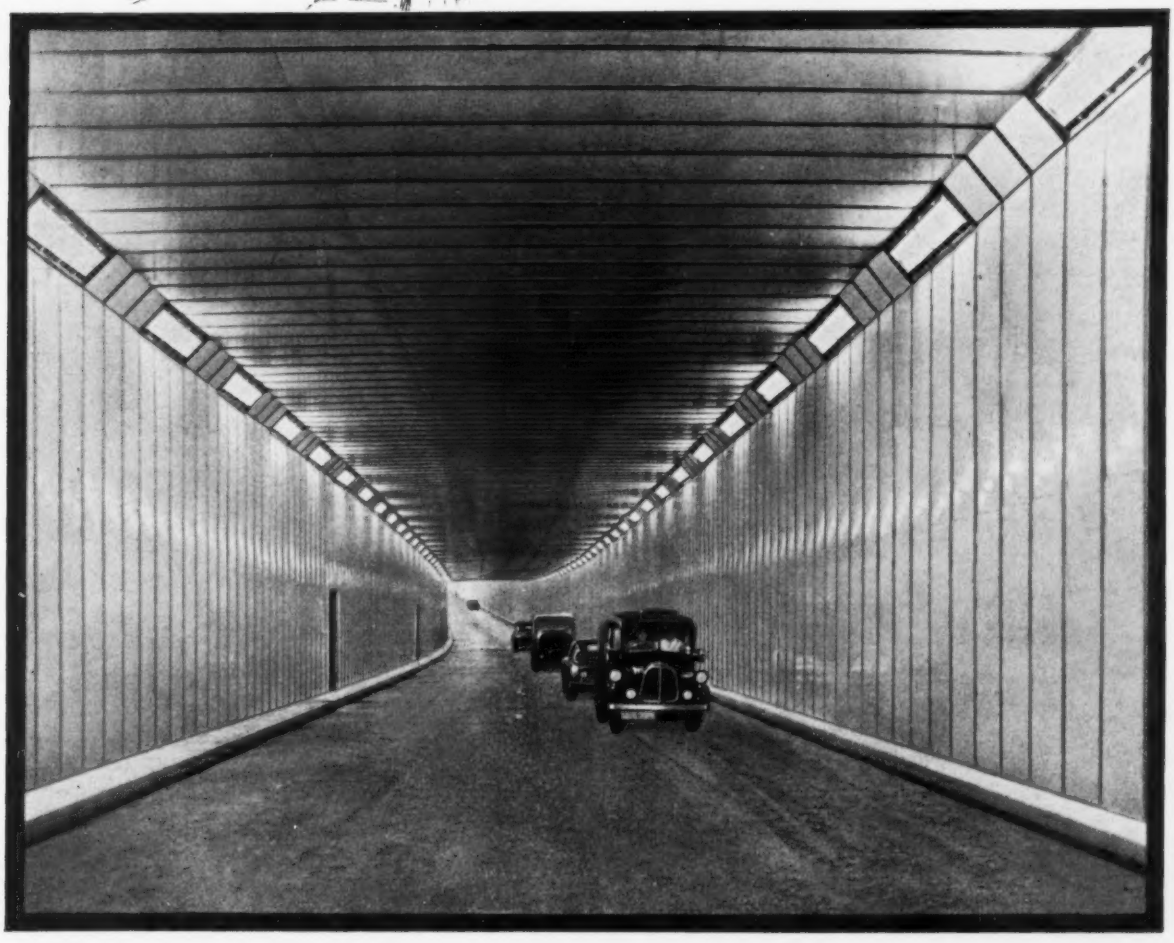
Branch Office: 11 Albert Square, Manchester, 2. Telephone: Blackfriars 9102/3

Works at Ware, Liverpool, Hirwaun, Newcastle, Coleford

Concrete Utilities Ltd., are pleased to announce that their new works at Coleford, Gloucester, for the manufacture of lighting columns and farm/industrial buildings is now in production.



G.E.C. LIGHTS THE A40 UNDERPASS



Twin tunnels, 780 ft. long, sweep the A40 straight under London's crowded North Circular Road.

The Lighting Division of the G.E.C., responsible for lighting both the underpass and adjacent roadways, has evolved an interesting and unique system of graduated daylight to ease the contrast between natural and artificial light on the approaches to the tunnels.

220 ft. long canopies over the cuttings leading down to the tunnel entrances reduce the amount of daylight reaching the road surface and enable motorists' eyes to adjust themselves to the light in the tunnel. After dark a lower level of illumination is required in the tunnel than in the daytime and is effected by switching off every other lighting unit.

This is the first underpass lighting scheme to be sponsored by the Ministry of Transport, whose consulting engineers, Messrs. Rendel, Palmer and Tritton, worked closely with the G.E.C. Lighting Division and the Electrical Contractors, Messrs. Malcolm and Allan (London) Ltd., throughout the project.

G.E.C.
LIGHTING DIVISION

THE GENERAL ELECTRIC CO. LTD., MAGNET HOUSE, KINGSWAY, LONDON, W.C.2

INDEX TO ADVERTISERS

I.C.I. PLASTICS FOR MODERN LIGHTING

'Perspex' acrylic sheet for modular ceiling lighting fittings

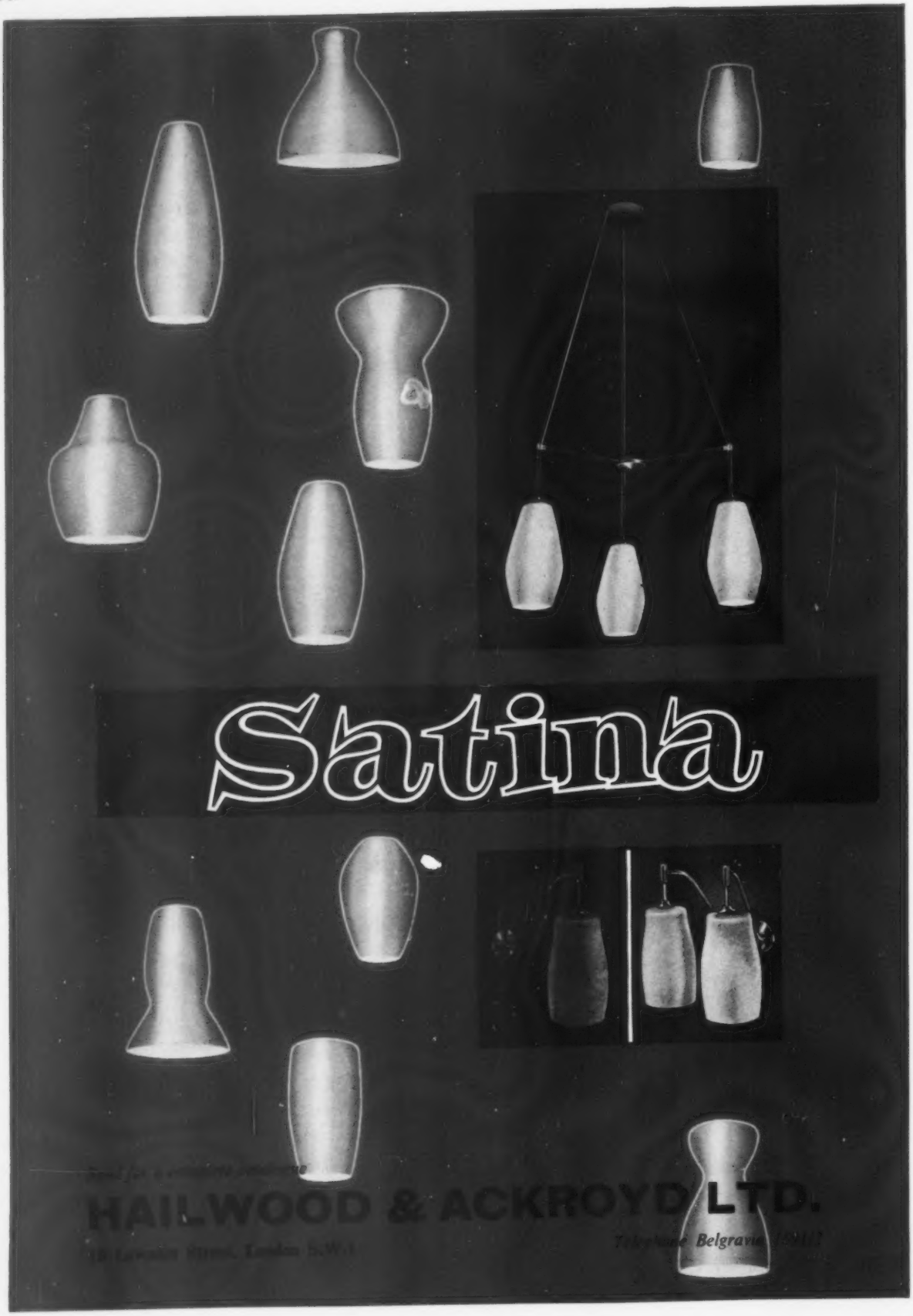
Modular fittings with opal 'Perspex' diffusers meet the lighting requirements of modern office blocks with low ceiling heights. The diffusing covers of modular fittings are often large and must be designed so that they do not sag. Studies on the "creep" properties of 'Perspex' provide the necessary data to ensure trouble-free operation over very many years.

'PERSPEX'

'Perspex' is the registered trade mark for the acrylic sheet manufactured by I.C.I.

Equipment used at the T.S. & D. Department, I.C.I. Plastics Division, to measure the "creep" characteristics of 'Perspex' acrylic sheet.

Modular ceiling lighting fittings with opal **'Perspex'** diffusing panels made by The General Electric Company Limited, installed in the Midland Bank Ltd., High Holborn.


Satina
HAILWOOD & ACKROYD LTD.